



**US Army Corps  
of Engineers®**

Seattle District

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# **Multiple Award Remediation Contracts (MARC) for Washington, Oregon, Idaho and Montana**

## **Service Solicitation and Specifications**

**This is 100% Set-Aside for Small Businesses**

**February 2003**

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THIS PROCUREMENT IS:  
100 %SET ASIDE FOR Small Business Firms

A one time site visit for offerors is scheduled for Friday, March 7, 2003 at 11:00 a.m. Local Time. Offers wishing to visit the site shall meet at the Washington North Tongue Point Office at RT 5, Hanger 3, Astoria OR 97103. On-site point of contact is Jennifer Paulson, at 503-791-6058, Monday through Friday between 8:00 a.m. and 3:30 p.m. The Corps of Engineer's contact is Chris Hall at 253-686-0193.

OFFERORS ARE URGED and expected to inspect the site where construction is to be performed and to satisfy themselves as to all general and local conditions which may affect the cost of performance of the Task Order, to the extent, such information is reasonably obtainable. In no event, will a failure to inspect the site constitute grounds for withdrawal of a bid after opening or for a claim after award of the Task Order.

FOR INQUIRIES, CONTACT THE FOLLOWING Monday through Friday between the hours of 8:00 a.m. and 3:30 p.m.:

TECHNICAL MATTERS: techbid@nws02.usace.army.mil

BIDDING DOCUMENTS: Register for solicitations at the Internet site: <http://www.nws.usace.army.mil/ct/>  
PLANHOLDER'S LISTS: Lists may also be obtained from the same site

ADMINISTRATIVE MATTERS: Bonilie Lackey (206) 764-4481 bonilie.l.lackey@usace.army.mil

FAX: (206) 764-6817

All individuals are at the following mailing and street addresses:  
(Mail) Seattle District Corps of Engineers, P.O. Box 3755, Seattle, WA 98124-3755  
(Street) 4735 E. Marginal Way S., Seattle, WA 98134-2385

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## **!!!CAUTION TO OFFERORS !!!**

1. **TELEPHONES:** Limited telephone service is provided in the lobby. Only two public telephones may be used by offerors for completing offers.
2. **BUSINESS HOURS:** For the Seattle District Corps of Engineers are from 7:30 A.M. to 4:00 P.M., Monday through Friday.

### **BEFORE SIGNING AND MAILING THIS OFFER, PLEASE TAKE NOTE OF THE FOLLOWING, AS FAILURE TO PERFORM ANY ONE OF THESE ACTIONS MAY CAUSE YOUR OFFER TO BE REJECTED**

3. **AVAILABILITY OF FUNDS:** Funds are not presently available for this acquisition. No contract award will be made until appropriated funds are made available from which payment for contract purposes can be made.
4. **AMENDMENTS:** Have you acknowledged receipt of ALL amendments? If in doubt as to the number of amendments issued, please contact the specialist listed for administrative matters.
5. **AMENDED PAGES:** If any of the amendments furnished amended pages, the amended pages must be used in submitting your offer.
6. **MISTAKE IN OFFER:** Have you reviewed your offer price for possible errors in calculation or work left out?
7. **TELEGRAPHIC MODIFICATIONS:** The Seattle District does not have the capability of receiving commercial telegrams directly. Offerors who wish to modify their offer by telegram are urged to ensure that telegrams are submitted within enough time to arrive at the opening office prior to the time specified for receipt of proposals. Any doubt as to time should be resolved in favor of EXTRA TIME. Transmission by Fax to this office is NOT ACCEPTABLE.
8. **OFFER ACCEPTANCE PERIOD:** The minimum offer acceptance period is specified in block 12, SF33, Solicitation, Offer and Award. Please ensure that you allow at least the stated number of calendar days for the Government to accept your offer.
9. **CENTRAL CONTRACTOR REGISTRATION:** Your attention is drawn to DFARS Clause 252.204-7004, REQUIRED CENTRAL CONTRACTOR REGISTRATION in Section L. Lack of registration in the CCR database will make offeror ineligible for award. Information on how to register and the time it takes are detailed in the clause.
10. **BONDS:** The contractor must furnish required performance and payment bonds with the issuance of task order one. An offeror guarantee is required with Task Order one. See Section I, 53.228-1 and 52.228-16.

BONDS – Matter of All Seasons Construction, Inc. GAO Decision B-291166.2

Bid Bonds must be accompanied by a Power of Attorney containing an original signature from the surety, which must be affixed to the Power of Attorney after the Power of Attorney has been generated. Computer generated and signed Power's of Attorney will only be accepted if accompanied by an original certification from a current officer of the surety attesting to its authenticity and continuing validity.

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<b>SOLICITATION, OFFER AND AWARD</b>		<b>1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)</b>		<b>RATING</b>		<b>PAGE OF</b> 1 PAGES	
<b>2. CONTRACT NO.</b>		<b>3. SOLICITATION NO.</b> DACW67-03-R-0009		<b>4. TYPE OF SOLICITATION</b> <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		<b>5. DATE ISSUED</b> Feb 26, 2003	
						<b>6. REQUISITION/PURCHASE NO.</b> W68MD9-3008-4897	
<b>7. ISSUED BY</b> USA Engineer District, Seattle ATTN: CENWS-CT PO Box 3755, Seattle, WA 98124-3755		<b>CODE</b> Tel: 206-764-6853 Fax: 206-764-6817		<b>8. ADDRESS OFFER TO</b> (If other than Item 7) See Item 7 or Handcarry to: Seattle District, USACE 4735 E. Marginal Way South Seattle, WA 98134			

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

### SOLICITATION

9. Sealed offers in original and 4 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Contracting Division, 2nd Floor, Col C-5 until 2:00 PM local time 03/28/03  
(Hour) (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: Section L, Provision No. 52.214-7 or 52.215-10.  
All offers are subject to all terms and conditions contained in this solicitation.

<b>10. FOR INFORMATION CALL:</b>		<b>A. NAME</b> Bonilie Lackey		<b>B. TELEPHONE NO.</b> (Include area code) (NO COLLECT CALLS) (206)764-4481	
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### 11. TABLE OF CONTENTS

(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
<b>PART I - THE SCHEDULE</b>				<b>PART II - CONTRACT CLAUSES</b>			
<input checked="" type="checkbox"/>	A	SOLICITATION/CONTRACT FORM		<input checked="" type="checkbox"/>	I	CONTRACT CLAUSES	
<input checked="" type="checkbox"/>	B	SUPPLIES OR SERVICES AND PRICES/COST		<b>PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.</b>			
<input checked="" type="checkbox"/>	C	DESCRIPTION/SPECS./WORK STATEMENT			J	LIST OF ATTACHMENTS	
	D	PACKAGING AND MARKING		<b>PART IV - REPRESENTATIONS AND INSTRUCTIONS</b>			
<input checked="" type="checkbox"/>	E	INSPECTION AND ACCEPTANCE		<input checked="" type="checkbox"/>	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
<input checked="" type="checkbox"/>	F	DELIVERIES OR PERFORMANCE			L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
<input checked="" type="checkbox"/>	G	CONTRACT ADMINISTRATION DATA		<input checked="" type="checkbox"/>	M	EVALUATION FACTORS FOR AWARD	
<input checked="" type="checkbox"/>	H	SPECIAL CONTRACT REQUIREMENTS					

### OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within \_\_\_\_\_ calendar days (60 calendar days unless a different period is inserted by offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

<b>13. DISCOUNT FOR PROMPT PAYMENT</b> (See Section I, Clause No. 52.232-8)		<b>10 CALENDAR DAYS</b>		<b>20 CALENDAR DAYS</b>		<b>30 CALENDAR DAYS</b>		<b>CALENDAR DAYS</b>	
		%		%		%		%	
<b>14. ACKNOWLEDGMENT OF AMENDMENTS</b> (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:		<b>AMENDMENT NO.</b>		<b>DATE</b>		<b>AMENDMENT NO.</b>		<b>DATE</b>	
<b>15A. NAME AND ADDRESS OF OFFEROR</b>		<b>CODE</b>		<b>FACILITY</b>		<b>16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER</b> (Type or print)			
<b>15B. TELEPHONE NO.</b> (Include area code)		<input type="checkbox"/> <b>15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.</b>				<b>17. SIGNATURE</b>		<b>18. OFFER DATE</b>	

### AWARD (To be completed by Government)

<b>19. ACCEPTED AS TO ITEMS NUMBERED</b>		<b>20. AMOUNT</b>		<b>21. ACCOUNTING AND APPROPRIATION</b> SEE SECTION G	
<b>22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:</b> <input type="checkbox"/> 10 U.S.C. 2304(c) ( ) <input type="checkbox"/> 10 U.S.C. 253(c) ( )				<b>23. SUBMIT INVOICES TO ADDRESS SHOWN IN</b> (4 copies unless otherwise specified)	
				<b>ITEM</b>	
<b>24. ADMINISTERED BY</b> (If other than Item 7)		<b>CODE</b>		<b>25. PAYMENT WILL BE MADE BY</b> US Army Corps of Engineers Finance Center CEFC-AO-P 5722 Integrity Drive Millington, TN 38054-5004	
<b>26. NAME OF CONTRACTING OFFICER</b> (Type or print)				<b>27. UNITED STATES OF AMERICA</b> (Signature of Contracting Officer)	
				<b>28. AWARD DATE</b>	

**IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.**

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IF THE CONTRACTOR IS A CORPORATION OR PARTNERSHIP, THE **APPLICABLE PORTION** OF THE FORM LISTED BELOW MUST BE COMPLETED. IN THE ALTERNATIVE, OTHER EVIDENCE MUST BE SUBMITTED TO SUBSTANTIATE THE AUTHORITY OF THE PERSON SIGNING THE CONTRACT. IF A CORPORATION, **THE SAME OFFICER SHALL NOT EXECUTE BOTH THE CONTRACT AND THE CERTIFICATE.**

**CORPORATE CERTIFICATE**

I, \_\_\_\_\_, certify that I am the \_\_\_\_\_ Secretary of the Corporation named as Contractor herein; that \_\_\_\_\_, who signed this contract on behalf of the Contractor was then \_\_\_\_\_ of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

\_\_\_\_\_  
(Secretary) (CORPORATE SEAL)

**AUTHORITY TO BIND PARTNERSHIP**

This is to certify that the names, signatures and Social Security Numbers of all partners are listed below and that the person signing the contract has authority actually to bind the partnership pursuant to its partnership agreements. Each of the partners individually has full authority to enter into and execute contractual instruments on behalf of said partnership with the United States of America, except as follows: (state "none" or describe limitations, if any)

\_\_\_\_\_

This authority shall remain in full force and effect until such time as the revocation of authority by any cause whatsoever has been furnished in writing to, and acknowledged by, the Contracting Officer.

(Names, Signatures and Social Security Numbers of all Partners)

NAME	SIGNATURE	SOCIAL SECURITY NO.
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

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## Section C - Descriptions and Specifications

SECTION CSCOPE OF WORK

## Multiple Award Remediation Contracts (MARC)

I. OBJECTIVE

The objective of these contracts is for the contractor to mobilize with all equipment and personnel necessary to perform site cleanup, site remediation as required/identified to meet project cleanup standards, regulatory criteria and requirements and identified schedules and budgets. This type of contract is intended for use on projects in both the Military and Civil funded Hazardous, Toxic and Radiological Waste (HTRW) Programs and other Environmental Programs managed by the Seattle District.

II. LOCATION

Sites may range from those actually sited on military installations to sites remotely located throughout the Seattle District's four state geographical region; Washington, Oregon, Idaho, and Montana and may also include sites at other locations managed by the Seattle District. It is possible that multiple Task Orders may be awarded at numerous locations throughout the contract boundaries.

III. PROJECT INFORMATION

It is anticipated that a wide variety of remedial and interim remedial activities will be included in the execution of this contract. A number of these types of activities are listed herein, however, this list is not intended to be exhaustive or all-inclusive but are only to be considered as examples of the types of activities, which might be required. New or emerging technologies, as they become available or applicable, may also be utilized during the term of this contract. Tasks required to prepare a site for investigation/survey or to remove immediate threats to human health or safety and imminent ecological threats might also be identified;

- a. Screening, identification, packaging and disposal of potentially hazardous waste.
- b. Removal, transport and disposal of hazardous and non-hazardous debris.
- c. Installation of security fencing, signage, barricades, warning flagging, etc.
- d. Temporary road installation, road repair, site access preparation, etc.
- e. Brushing, cleaning and grubbing.
- f. Removal/disposal/replacement of above ground and below ground storage tanks.
- g. Removal/disposal/replacement of buried and exposed piping,
- h. Removal/remediation/disposal of contaminated soils.
- i. Building demolition and debris removal disposal.
- j. Site restoration, seeding, replanting and revegetation.
- k. Water treatment systems to include installation, operation and maintenance.
- l. In-situ soil treatment and stabilization processes.

- m. Air quality monitoring.
- n. Asbestos, lead based paint and Radon abatement and mitigation
- o. Installation of water wells, monitoring wells, sampling wells, etc.
- p. Soil, water and air sampling and analysis.
- q. UXO avoidance capabilities and UXO Construction Support..
- r. Environmental facility/equipment upgrades.
- s. Waste minimization, and pollution prevention projects.
- t. Habitat restoration projects.
- u. Preparation of Management and Health & Safety Plans.
- v. Incidental design associated with the above activities.
- w. Landfill capping

#### IV. DURATION

These contracts will be awarded in single year increments, a base year followed by four option years. The Government may decide to exercise the option years early depending if the capacity is fully utilized for any period prior to the one-year time limit. Award of option years will be determined by the Government and will be based on identified workload, remediation requirements and contractor performance. Schedules will be established for each individual Task Order awarded under this contract.

#### V. GOVERNMENT FURNISHED MATERIALS (GFM)

It is not expected for any Government Furnished Materials (GFM) to be provided during the execution of any Task Orders performed under this contract. If, however, GFM is provided, the GFM items will be clearly identified in the specific Task Order Scope of Work with an identified delivery date. Copies of the Safety and Health Requirements Manual, EM 385-1-1, September 1996 will be provided to the selected firms.

#### VI. PROJECT DOCUMENTATION

Project documentation will be provided with each Task Order issued under this contract(s). Examples of such documents include, but are not limited to, formal design drawings, sketches, simplified design drawings, site specific specification, guide specifications, design analysis, investigation reports, analytical results, sampling plans and other documentation appropriate to the project and program. The intent is to provide sufficient project specific information to allow for a complete understanding of the remediation project. Each Task Order will include a statement of work, bid schedule, and reference applicable Corps of Engineers Guide Specifications (CEGS) or any specific specifications that are applicable to the project. The CEGS may be found on the internet at <http://www.ccb.org/ufgs/ufgs.htm> and are revised periodically. At the time of the preparation of bids for the Task Order, the most recent version of the applicable CEGS and specific specifications will apply.

END OF SECTION C



Section C  
Description/Specifications/Work Statement  
DACW67-03-R-0009

C.1 SPECIFICATIONS:

Scope of Work, Solicitation No. DACW67-03-R-0009, covering the general requirements for the services attached hereto and made a part hereof.

C.2 CHANGES IN SPECIFICATIONS:

The right is reserved, as the interest of the Government may require, to revise or amend the specifications prior to the date set for receipt of proposals. Such revisions and amendments, if any, will be announced by amendment(s) to this solicitation. Copies of such amendments as may be issued will be furnished to all prospective offerors. If the revisions and amendments are of a nature that requires material changes in quantities or prices offered, or both, the date set for receipt of proposals may be postponed by such number of days as, in the opinion of the Contracting Officer, will enable the offerors to revise their proposals. In such cases, the amendment will include the announcement of the new date for receipt of proposals.

## Section E - Inspection and Acceptance

## CLAUSES INCORPORATED BY FULL TEXT

## 52.246-4 INSPECTION OF SERVICES--FIXED-PRICE (AUG 1996)

- (a) Definitions. "Services," as used in this clause, includes services performed, workmanship, and material furnished or utilized in the performance of services.
- (b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the services under this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.
- (c) The Government has the right to inspect and test all services called for by the contract, to the extent practicable at all times and places during the term of the contract. The Government shall perform inspections and tests in a manner that will not unduly delay the work.
- (d) If the Government performs inspections or tests on the premises of the Contractor or a subcontractor, the Contractor shall furnish, and shall require subcontractors to furnish, at no increase in contract price, all reasonable facilities and assistance for the safe and convenient performance of these duties.
- (e) If any of the services do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount. When the defects in services cannot be corrected by reperformance, the Government may (1) require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and (2) reduce the contract price to reflect the reduced value of the services performed.
- (f) If the Contractor fails to promptly perform the services again or to take the necessary action to ensure future performance in conformity with contract requirements, the Government may (1) by contract or otherwise, perform the services and charge to the Contractor any cost incurred by the Government that is directly related to the performance of such service or (2) terminate the contract for default.

(End of clause)

## 52.246-10 INSPECTION OF FACILITIES (APR 1984)

- (a) Definition. "Contractor's managerial personnel," as used in this clause, is defined in the Liability for the Facilities clause of this contract.
- (b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the facilities and work called for by this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.
- (c) The Government has the right to inspect and test the facilities and work called for by the contract, to the extent practicable at all places and times, including the period of manufacture. The Government may also inspect the facilities and work at the plant or plants of the Contractor or its subcontractors engaged in the performance of the contract. The Government shall perform inspections and tests in a manner that will not unduly delay the work to be performed by the Contractor under this contract or any related contract.

(d) If the Government performs inspection or test on the premises of the Contractor or a subcontractor, the Contractor shall furnish and shall require subcontractors to furnish all reasonable facilities and assistance for the safe and convenient performance of these duties.

(e) The Contracting Officer may, at any time, require the Contractor to correct or replace facilities or work that is defective or does not conform to contract requirements. Except as provided in paragraph (f) below, corrections and replacements shall be at Government expense if, under the terms of this contract, the facilities or work corrected or replaced were initially furnished, or required to be performed at Government expense.

(f) The Contracting Officer may, at any time, require the Contractor to correct or replace facilities or work that is defective or does not conform to contract requirements, without cost to the Government under this contract or any related contract or subcontract, if the defects or failures are due to fraud, lack of good faith, or willful misconduct on the part of the Contractor's managerial personnel; or to the conduct of one or more of the Contractor's employees selected or retained by the Contractor after any of the Contractor's managerial personnel has reasonable grounds to believe that the employee is habitually careless or unqualified.

(g) Corrected or replacement facilities or work shall be subject to this clause in the same manner as facilities or work originally completed under the contract.

(End of clause)

#### 52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the



time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(End of clause)

#### 52.246-13 INSPECTION--DISMANTLING, DEMOLITION, OR REMOVAL OF IMPROVEMENTS (AUG 1996)

(a) Unless otherwise designated by the specifications, all workmanship performed under the contract is subject to Government inspection at all times and places where dismantling or demolition work is being performed. The Contractor shall furnish promptly, and at no increase in contract price all reasonable facilities, labor, and materials necessary for safe and convenient inspection by the Government. The Government shall perform inspections in a manner that will not unduly delay the work.

(b) The Contractor is responsible for damage to property caused by defective workmanship. The Contractor shall promptly segregate and remove from the premises any unsatisfactory facilities, materials, and equipment used in contract performance, and promptly replace them with satisfactory items. If the Contractor fails to proceed at once in a workmanlike manner with performance of the work or with the correction of defective workmanship, the Government may (1) by contract or otherwise, replace the facilities, materials, and equipment or correct the workmanship and charge the cost to the Contractor and (2) terminate for default the Contractor's right to proceed. The Contractor and any surety shall be liable, to the extent specified in the contract for any damage or cost of repair or replacement.

(End of clause)

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## Section F - Deliveries or Performance

## CLAUSES INCORPORATED BY FULL TEXT

## 52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

(End of clause)

## 52.242-15 STOP-WORK ORDER (AUG 1989)

(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage;

provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(i) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(End of clause)

#### 52.242-16 STOP-WORK ORDER--FACILITIES (AUG 1989)

(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the acquisition, construction, or installation work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall, at Government expense, immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Termination of Work clause of this contract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery completion schedule, the estimated cost, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) An appropriate equitable adjustment may be made in any related contract of the Contractor that provides for adjustment and is affected by any stop-work order under this clause. The Government shall not be liable to the Contractor for damages or loss of profits because of a stop-work order issued under this clause.

(End of clause)

#### 52.242-17 GOVERNMENT DELAY OF WORK (APR 1984)

(a) If the performance of all or any part of the work of this contract is delayed or interrupted (1) by an act of the Contracting Officer in the administration of this contract that is not expressly or impliedly authorized by this contract, or (2) by a failure of the Contracting Officer to act within the time specified in this contract, or within a reasonable time if not specified, an adjustment (excluding profit) shall be made for any increase in the cost of performance of this contract caused by the delay or interruption and the contract shall be modified in writing accordingly. Adjustment shall also be made in the delivery or performance dates and any other contractual term or condition affected by the delay or interruption. However, no adjustment shall be made under this clause for any delay or interruption to the extent that performance would have been delayed or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an adjustment is provided or excluded under any other term or condition of this contract.

(b) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved, and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the delay or interruption, but not later than the day of final payment under the contract.

(End of clause)

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## Section G - Contract Administration Data

SECTION GSECTION G  
CONTRACT ADMINISTRATION DATA

## G.1. Contract will be administered by:

Seattle District, Corps of Engineers  
CENWS-CT-CB-CU  
P.O. Box 3755  
Seattle, WA 98124-2255

Name: Bonilie L. Lackey  
Telephone: (206)764-4481

Contracting Officer's Technical Representative will be determined at the time of contract award.

## G.2 INVOICE SUBMITTAL:

The Contractor shall submit invoices for payment as follows: (Note – payment will be made by Financial Center, Millington, Tennessee)

Original & 2 copies to: Department of the Army  
US Army Corps of Engineers  
Financial Center CEFC-AO-P  
5720 Integrity Drive  
Millington, TN 38054-5005

One Copy to: Seattle District  
US Army Corps of Engineers  
Attn: CENWS-PM-EM  
P.O. Box 3755  
Seattle, WA 98124-3755

G.3 PAYMENT: Payment will be made in accordance with the Prompt Payment Act and the clause at FAR 52.232-1, Payments (Apr 1984). (Refer to Section I)

## G.4 ACCOUNTING AND APPROPRIATION DATA:

The accounting and appropriation data will be reflected on individual task orders awarded under this contract. All three contracts will include a base period not to exceed (NTE) one year and four-option periods (NTE one year) for a total contract performance period NTE five years. If capacity is fully utilized for any period before the one-year time limit, the Government may decide to exercise the next option year early. Maximum value of all work awarded under the three MARCs will be limited to \$5 million per contract period (shared by all three awardees) or \$25 million over the life of the contract (shared by all three awardees). There are no minimum or maximum task order limits established under the MARC but no single task order will exceed the contract period limit. The minimum guarantee amount for the base period is \$34,000 per contract awarded. The minimum-guarantee amount for each option period exercised is \$17,000 per contract awarded. The expiration or termination of the ordering period shall not affect any order issued during the effective period of this contract. Only the Contracting Officer executing this contract and the Successor Contracting Officer has the authority to modify the term and conditions of this contract.

G.5 Orders for services under multiple award contracts (DFARS 216-505-70):

(a) This subsection--

- (1) Implements Section 803 of the National Defense Authorization Act for Fiscal Year 2002 (Pub. L. 107-107);
- (2) Applies to orders for services exceeding \$100,000 placed under multiple award contracts, instead of the procedures at FAR 16.505(b)(1) and (2) (see Subpart 208.4 for procedures applicable to orders placed against Federal Supply Schedules);
- (3) Also applies to orders placed by non-DoD agencies on behalf of DoD; and
- (4) Does not apply to orders for architect-engineer services, which shall be placed in accordance with the procedures in FAR Subpart 36.6.

(b) Each order for services exceeding \$100,000 shall be placed on a competitive basis in accordance with paragraph (c) of this subsection, unless the contracting officer waives this requirement on the basis of a written determination that--

- (1) One of the circumstances described at FAR 16.505(b)(2)(i) through (iv) applies to the order; or
- (2) A statute expressly authorizes or requires that the purchase be made from a specified source.

(c) An order for services exceeding \$100,000 is placed on a competitive basis only if the contracting officer--

- (1) Provides a fair notice of the intent to make the purchase, including a description of the work the contractor shall perform and the basis upon which the contracting officer will make the selection, to all contractors offering the required services under the multiple award contract; and
- (2) Affords all contractors responding to the notice a fair opportunity to submit an offer and have that offer fairly considered.

(d) When using the procedures in this subsection--

- (1) The contracting officer should keep contractor submission requirements to a minimum;
- (2) The contracting officer may use streamlined procedures, including oral presentations;
- (3) The competition requirements in FAR Part 6 and the policies in FAR Subpart 15.3 do not apply to the ordering process, but the contracting officer shall consider price or cost under each order as one of the factors in the selection decision; and
- (4) The contracting officer should consider past performance on earlier orders under the contract, including quality, timeliness, and cost control.

G.6 PAYMENT AND PERFORMANCE BONDS: Payment and Performance Bonds, Standard Forms 25 and 25-A, are required for the prime contract for firm fixed price construction task orders, Reference FAR Part 28.102. Payment and Performance, if required must be submitted within 10 calendar days of award of the task order.

END OF SECTION G



## Section H - Special Contract Requirements

### SPECIAL CONTRACT REQUIREMENTS

#### H.1 MINIMUM AND MAXIMUM AMOUNTS OF CONTRACT

The contractor shall, upon receipt of duly executed Task Orders, perform all work required of this contract and such further requirements as may be contained in task orders for projects described in said Task Orders. No Task Orders shall be issued after the expiration of the contract. There are no minimum or maximum task order limits established under the MARC but no single task order will exceed the contract period limit. The contract shall be awarded from this solicitation will be awarded with a Joint Total Acquisition Value (JTAV) not to exceed \$5 million per year (shared by all three awardees) for the base year and for each of the four option years for a total contract value of NTE \$25 million (shared by all three awardees). The minimum guarantee amount is specified in Section G of the contract. The contractor will not necessarily be awarded equal amounts of the JTAV.

#### H2 ORDERING PROCEDURES FOR TASK ORDERS:

H.2.1 When the government requires work under the contract, an RFP shall be issued. The RFP shall include information concerning the statement of work, guide specifications, drawings, attachments, information pertaining to site visits, evaluation criteria and any other requirements for submission (e.g., proposal requirements, bid schedule, etc.). Performance and Payment bonds may be required.

H.2.2 It is anticipated that the majority of the Task Orders will be awarded based on competition. The awardee of the contract resulting for this solicitation may compete among themselves for projects. The Government reserves the right to issue additional solicitations and award additional contracts within the region covered by this solicitation. In this event, the new contractors, in accordance with the terms of their contracts, may compete for Task Orders with the contractors selected under this solicitation.

H.2.3 In determining eligibility to compete, the Contracting Officer will consider such factors as past performance on earlier Task Orders under this contract, quality, timeliness, or other factors the Contracting Officer determines are relevant to award of a particular Task Order. In the event a Contractor is unable to submit an offer in response to an RFP, the Contractor shall notify the Contracting Officer in writing.

H.2.4 Offerer's attendance at walk throughs is considered vital to preparation of competitive and cost effective offers, and to understanding the total results desired by the Government. Failure to attend walk throughs may not be used as an excuse for omission or miscalculation in offers, and may be taken into consideration in determining a Contractor's eligibility to participate in future task orders. The Contractor will not be reimbursed for attendance during negotiations, site visits or other pre-task order costs.

H.2.5 Award Decision: Whenever possible, award will be made without discussions. If discussions are held, at the conclusion, each contractor will be required to provide a final proposal revision. Task Order award will be made based on the lowest price or best value to the Government, as described in the RFP. The awarded Task Order will be firm fixed price with a specific completion date. The Government will notify contractors when any Task Order (competed or sole source) is awarded.

H.2.6 Task Orders will be issued on DD Form 1155. Orders may be placed via mail, telephone, facsimile or electronic commerce. The Task Order becomes binding when the Contracting Officer signs the Order. Notice to Proceed will be issued separately after receipt of Performance and Payment Bonds, when required.

H.2.7 In accordance with FAR 16.505(a)(7) no protest under Subpart 33.1 is authorized in connection with the issuance or proposed issuance of an order under a task order contract except for a protest on the grounds that the order increases the scope, period or maximum value of the contract.

H.2.8 Ombudsman. If the Contractor believes it was not fairly considered for a particular Task Order, the Contractor may present the matter to the Contracting Officer. The Contractor may appeal the explanation or decision of the Contracting Officer to the U. S. Army Corps of Engineers (USACE) Ombudsman, who is the USACE Principal Assistant Responsible for Contracting (PARC) at the following address: Headquarters, US Army Corps of Engineers. ATTN: CEPR-P (USACE Ombudsman), 20 Massachusetts Avenue, Washington DC 20314-1000. The Ombudsman

will review the Contractor's complaint, and in coordination with the Contracting Officer, ensure that the Contractor was afforded a fair opportunity to be considered for the Task Order.

### H.3 PROPOSAL SUBMISSION REQUIREMENT - COMPETITIVE RFPS

H.3.1 Depending upon the requirements of each Task Order, the Contractor will provide one of the following in response to an RFP: (a) lump-sum price; (b) a price for each line item in the schedule (when optional items are used), or (c) technical proposal and a separate price proposal.

H.3.2 Contractor shall respond within the number of calendar days stated in the RFP by submitting a proposal to the Contracting Officer in accordance with the requirements stated in the RFP.

H.3.3 Proposal will either be accepted as is or negotiated to the mutual agreement of both the Government and the Contractor. Upon conclusion of satisfactory discussion or negotiations (if required), a Task Order will be issued by the Contracting Officer reflecting the negotiated order price and payment terms as outlined in the statement of work or specifications. In any instance where there is failure to reach agreement on price, the Government reserves the right to withdraw the project and have it completed by other means.

### H.4. PROPOSAL SUBMISSION REQUIREMENTS - SOLE SOURCE

FAR Part 15 procedures will be followed for sole source task orders. For supplies, materials or subcontracting, the contractor shall provide competitive quotes to be used to help establish a fair and reasonable price.

### H.5 EVALUATION METHOD AND PROCEDURES

The Contracting Officer, in making decisions in award of any individual Task Order will consider factors such as past performance on earlier Task Orders under this contract, quality, timeliness, or other factors that the Contracting Officer determines to be relevant to award a particular Task Order. Award factors will vary depending on the unique requirements for each Task Order, however, pricing will weigh heavily. When an RFP for a Task Order is issued, the Government intends to select the most advantageous, responsive, and responsible proposal resulting in the Best Value to the Government, price and other factors considered. When both technical and price are considered, in most cases, award of a Task Order resulting from an RFP will be based on technical rating and price being considered of equal importance. However, there may be instances where the technical rating outranks price. Each RFP will describe criteria to be utilized in evaluation of the Task Order proposal.

H.6 The Contractor shall be limited to utilization of the key personnel and subcontractors during the performance of this contract which were identified in the Contractor's Technical proposal accepted by the government upon award of the contract unless prior Contracting Officer approval of the substitution is obtained. The Contractor shall obtain the Contracting Officer's written consent before making any substitutions for key personnel or subcontractors by submitting in writing to the Contracting Officer the reasons for the substitutions and the qualifications of the persons or subcontractors. Provide the same level of detail on credentials and qualifications on the key personnel or subcontractor as was required in the solicitation. The key personnel or subcontractors proposed as substitutes must possess equal or greater qualifications than the individuals or subcontractors accepted with the award of the contract at no additional cost to the Government. Notifications shall be in writing and shall occur within a reasonable period of time after award.

### H.7 WAGE RATES

A Department of Labor Wage Determination will be provided with each task order request for proposal letter for rates applicable to the location of work to be performed. Applicable Service Contract Act (SCA) wage rates, for service task orders or Davis Bacon Act (DBA) rates for construction task orders, shall be applied when formulating task order price proposals.

## CLAUSES INCORPORATED BY FULL TEXT

## Successor Contracting Officers (52.201-4001)

The Contracting Officer who signed this contract is the primary Contracting Officer for the contract. Nevertheless, any Contracting Officer assigned to the Seattle District and acting within his/her authority may take formal action on this contract when a contract action needs to be taken and the primary Contracting Officer is unavailable.

## REQUIRED INSURANCE (52.228-4002) (JAN 2000)

a. The Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance.

(1) Workers' Compensation and Employer's Liability Insurance as legally required by the state wherein the work is being performed. Employer's liability coverage of at least \$100,000 shall be required, except in States with exclusive or monopolistic funds that do not permit workers' compensation to be written by private carriers. If occupational diseases are not compensable under the Federal or State Workers' compensation and occupational disease statutes, they shall be covered under the employer's liability section of the insurance policy, except when contract operations are so commingled with a contractor's commercial operations that it would not be practical to require this coverage.

(2) General Liability Insurance. Bodily injury liability insurance, in the minimum limits of \$500,000 per occurrence, shall be required on the comprehensive form of policy; however, property damage liability insurance ordinarily shall not be required.

(3) Automobile Liability Insurance. This insurance shall be required on the comprehensive form of policy and shall provide bodily injury liability and property damage liability covering the operation of all automobiles used in connection with the performance of the contract. At least the minimum limits of \$200,000 per person and \$500,000 per occurrence for bodily injury and \$20,000 per occurrence for property damage shall be required.

(b) Prior to the commencement of work hereunder, the Contractor shall furnish to the Contracting Officer a certificate or written statement of the above required insurance. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation or any material change in the policies adversely affecting the interests of the Government in such insurance shall not be effective for such period as may be prescribed by the laws of the state in which this contract is to be performed and in no event less than (30) days after written notice thereof to the Contracting Officer.

## INDIVIDUAL SURETIES (52.228-4003) DEC 1999

As prescribed in FAR 28.203, individual sureties are acceptable for all types of bonds except position schedule bonds.

One individual surety is adequate support for a bond, provided the unencumbered value of the assets pledged by that individual surety equal or exceed the amount of the bond. An offeror may submit up to three individual sureties for each bond, in which case the pledged assets, when combined, must equal or exceed the penal amount of the bond. Each individual surety must accept both joint and several liability to the extent of the penal amount of the bond.

An individual surety may be accepted only if a security interest in acceptable assets is provided to the Government by the individual surety. THE SECURITY INTEREST SHALL BE FURNISHED WITH THE BOND.

Acceptable assets include:

- (a) Cash, or certificates of deposit, or other cash equivalents with a federally insured financial institution;
- (b) United States Government securities at market value.
- (c) Stocks and bonds actively traded on a national U.S. security exchange with certificates issued in the name of the individual surety. (See FAR 28.203-2(b)(3) for list of acceptable exchanges).

(d) Real property owned in fee simple by the surety without any form of concurrent ownership, except as provided in FAR 28.203-2(c) (3)(iii), and located within the 50 United States, its territories, or possessions. These assets will be accepted at 100% of the most current tax assessment value (exclusive of encumbrances) or 75% of the properties' unencumbered market value provided a current appraisal is furnished. (See clause entitled "Pledges of Assets").

(e) Irrevocable letters of credit (ILC) issued by a federally insured financial institution in the name of the contracting agency and which identify the agency and solicitation or contract number for which the ILC is provided.

Unacceptable assets include but are not limited to:

- (a) Notes or accounts receivable;
- (b) Foreign securities;
- (c) Real property as follows:
  - (1) Real property located outside the United States, its territories, or possessions.
  - (2) Real property which is a principal residence of the surety.
  - (3) Real property owned concurrently regardless of the form of co-tenancy (including joint tenancy, tenancy by the entirety, and tenancy in common) except where all co-tenants agree to act jointly.
  - (4) Life estates, leasehold estates, or future interests in real property.
- (d) Personal property other than that listed as acceptable assets above (e.g., jewelry, furs, antiques);
- (e) Stocks and bonds of the individual surety in a controlled, affiliated, or closely held concern of the offeror/contractor;
- (f) corporate assets (e.g., plant and equipment);
- (g) Speculative assets (e.g., mineral rights);
- (h) Letters of credit, except as provided above.

In order for the Contracting Officer to determine the acceptability of individuals proposed as sureties, all bidders/offerors who submit bonds which are executed by individual sureties shall furnish with the bonds:

- (a) SF28, Affidavit of Individual Surety,
- (b) Security interest provided to the Government for all pledged assets (See clause entitled "Pledge of Assets") and
- (c) A current list of all other bonds (including Bid Bonds) on which each individual surety is a surety and bonds for which the individual is requesting to be a surety, together with a statement as to the percent of completion of these bonded jobs. The list will include Contract or Solicitation Numbers, the name, address and telephone number of the contracting office, the type of bond (bid, performance or payment), and the amount of each original obligation. (Note: Performance and Payment bonds must be listed separately.)

Failure to furnish this information may result in non-approval of the surety and a determination of nonresponsibility.

#### 252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

## Section I - Contract Clauses

## CLAUSES INCORPORATED BY FULL TEXT

## Successor Contracting Officers (52.201-4001)

The Contracting Officer who signed this contract is the primary Contracting Officer for the contract. Nevertheless, any Contracting Officer assigned to the Seattle District and acting within his/her authority may take formal action on this contract when a contract action needs to be taken and the primary Contracting Officer is unavailable.

## 52.202-1 DEFINITIONS (DEC 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

(b) Commercial component means any component that is a commercial item.

(c) Commercial item means--

(1) Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and that--

(i) Has been sold, leased, or licensed to the general public; or

(ii) Has been offered for sale, lease, or license to the general public;

(2) Any item that evolved from an item described in paragraph (c)(1) of this clause through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a Government solicitation;

(3) Any item that would satisfy a criterion expressed in paragraphs (c)(1) or (c)(2) of this clause, but for--

(i) Modifications of a type customarily available in the commercial marketplace; or

(ii) Minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. "Minor" modifications means modifications that do not significantly alter the nongovernmental function or essential physical characteristics of an item or component, or change the purpose of a process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor;

(4) Any combination of items meeting the requirements of paragraphs (c)(1), (2), (3), or (5) of this clause that are of a type customarily combined and sold in combination to the general public;

(5) Installation services, maintenance services, repair services, training services, and other services if--

(i) Such services are procured for support of an item referred to in paragraph (c)(1), (2), (3), or (4) of this definition, regardless of whether such services are provided by the same source or at the same time as the item; and

(ii) The source of such services provides similar services contemporaneously to the general public under terms and conditions similar to those offered to the Federal Government;

(6) Services of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed under standard commercial terms and conditions. This does not include services that are sold based on hourly rates without an established catalog or market price for a specific service performed. For purposes of these services--

(i) Catalog price means a price included in a catalog, price list, schedule, or other form that is regularly maintained by the manufacturer or vendor, is either published or otherwise available for inspection by customers, and states prices at which sales are currently, or were last, made to a significant number of buyers constituting the general public; and

(ii) Market prices means current prices that are established in the course of ordinary trade between buyers and sellers free to bargain and that can be substantiated through competition or from sources independent of the offerors.

(7) Any item, combination of items, or service referred to in subparagraphs (c)(1) through (c)(6), notwithstanding the fact that the item, combination of items, or service is transferred between or among separate divisions, subsidiaries, or affiliates of a Contractor; or

(8) A nondevelopmental item, if the procuring agency determines the item was developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple State and local Governments.

(d) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

(e) Contracting Officer means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(f) Nondevelopmental item means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (f)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (f)(1) or (f)(2) solely because the item is not yet in use.

(g) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(h) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

## 52.202-1 DEFINITIONS (MAY 2001) --ALTERNATE I (MAR 2001)

(a) Agency head or head of the agency means the Secretary (Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, unless otherwise indicated, including any deputy or assistant chief official of the executive agency.

(b) Commercial component means any component that is a commercial item.

(c) Component means any item supplied to the Government as part of an end item or of another component, except that for use in 52.225-9, and 52.225-11 see the definitions in 52.225-9(a) and 52.225-11(a).

(d) Contracting Officer means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(e) Nondevelopmental item means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (f)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (f)(1) or (f)(2) solely because the item is not yet in use.

(f) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(g) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

(End of clause)

## 52.203-3 GRATUITIES (APR 1984)

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

#### 52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

(End of clause)

#### 52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1995)

(a) Except as provided in (b) of this clause, the Contractor shall not enter into any agreement with an actual or prospective subcontractor, nor otherwise act in any manner, which has or may have the effect of restricting sales by such subcontractors directly to the Government of any item or process (including computer software) made or furnished by the subcontractor under this contract or under any follow-on production contract.

(b) The prohibition in (a) of this clause does not preclude the Contractor from asserting rights that are otherwise authorized by law or regulation.

(c) The Contractor agrees to incorporate the substance of this clause, including this paragraph (c), in all subcontracts under this contract which exceed \$100,000.



## 52.203-7 ANTI-KICKBACK PROCEDURES. (JUL 1995)

## (a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor," as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from -

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in

paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold, from sums owed a subcontractor under the prime contract, the amount of any kickback. The Contracting Officer may order the monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed \$100,000.

#### 52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27(a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

(End of clause)

#### 52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the

head of the contracting activity or designee determines that there was a violation of subsection 27 (a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

## 52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 1997)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

(1) The awarding of any Federal contract.

- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

- (1) An individual who is appointed to a position in the Government under Title 5, United States Code, including a position under a temporary appointment.
- (2) A member of the uniformed services, as defined in subsection 101(3), Title 37, United States Code.
- (3) A special Government employee, as defined in section 202, Title 18, United States Code.
- (4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days

within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any

payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

(a) Definitions. As used in this clause--

“Postconsumer material” means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of “recovered material.” For paper and paper products, postconsumer material means “postconsumer fiber” defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

“Printed or copied double-sided” means printing or reproducing a document so that information is on both sides of a sheet of paper.

“Recovered material,” for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as “recovered fiber” and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as--

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

#### 52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debar Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the \$25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed \$25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its



principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

#### 52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within **\*\* TO BE DETERMINED ON A TASK ORDER BASIS\*\*** calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than **\*\* TO BE DETERMINED ON A TASK ORDER BASIS\*\***. The time stated for completion shall include final cleanup of the premises.

\*The Contracting Officer shall specify either a number of days after the date the contractor receives the notice to proceed, or a calendar date.

(End of clause)

#### 52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of **\*\* TO BE DETERMINED ON A TASK ORDER BASIS\*\*** for each calendar day of delay until the work is completed or accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

#### 52.211-13 TIME EXTENSIONS (SEP 2000)

Time extensions for contract changes will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements related to the changed work and that the remaining contract completion dates for all other portions of the work will not be altered. The change order also may provide an equitable readjustment of liquidated damages under the new completion schedule.

(End of clause)

#### 52.215-2 AUDIT AND RECORDS--NEGOTIATION (JUN 1999)

(a) As used in this clause, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

(b) Examination of costs. If this is a cost-reimbursement, incentive, time-and-materials, labor-hour, or price redeterminable contract, or any combination of these, the Contractor shall maintain and the Contracting Officer, or an authorized representative of the Contracting Officer, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred directly or indirectly in performance of this contract. This right of examination shall include inspection at all reasonable times of the Contractor's plants, or parts of them, engaged in performing the contract.

(c) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with any pricing action relating to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--

- (1) The proposal for the contract, subcontract, or modification;
- (2) The discussions conducted on the proposal(s), including those related to negotiating;
- (3) Pricing of the contract, subcontract, or modification; or
- (4) Performance of the contract, subcontract or modification.

(d) Comptroller General--(1) The Comptroller General of the United States, or an authorized representative, shall have access to and the right to examine any of the Contractor's directly pertinent records involving transactions related to this contract or a subcontract hereunder.

(2) This paragraph may not be construed to require the Contractor or subcontractor to create or maintain any record that the Contractor or subcontractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) Reports. If the Contractor is required to furnish cost, funding, or performance reports, the Contracting Officer or an authorized representative of the Contracting Officer shall have the right to examine and audit the supporting records and materials, for the purpose of evaluating (1) the effectiveness of the Contractor's policies and procedures to produce data compatible with the objectives of these reports and (2) the data reported.

(f) Availability. The Contractor shall make available at its office at all reasonable times the records, materials, and other evidence described in paragraphs (a), (b), (c), (d), and (e) of this clause, for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in Subpart 4.7, Contractor

Records Retention, of the Federal Acquisition Regulation (FAR), or for any longer period required by statute or by other clauses of this contract. In addition--

(1) If this contract is completely or partially terminated, the Contractor shall make available the records relating to the work terminated until 3 years after any resulting final termination settlement; and

(2) The Contractor shall make available records relating to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to this contract until such appeals, litigation, or claims are finally resolved.

(g) The Contractor shall insert a clause containing all the terms of this clause, including this paragraph (g), in all subcontracts under this contract that exceed the simplified acquisition threshold, and--

(1) That are cost-reimbursement, incentive, time-and-materials, labor-hour, or price-redeterminable type or any combination of these;

(2) For which cost or pricing data are required; or

(3) That require the subcontractor to furnish reports as discussed in paragraph (e) of this clause.

The clause may be altered only as necessary to identify properly the contracting parties and the Contracting Officer under the Government prime contract.

(End of clause)

#### 52.215-8 ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT (OCT 1997)

Any inconsistency in this solicitation or contract shall be resolved by giving precedence in the following order:

(a) The Schedule (excluding the specifications).

(b) Representations and other instructions.

(c) Contract clauses.

(d) Other documents, exhibits, and attachments.

(e) The specifications.

(End of clause)

#### 52.215-10 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (OCT 1997)

(a) If any price, including profit or fee, negotiated in connection with this contract, or any cost reimbursable under this contract, was increased by any significant amount because--

(1) The Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data;

(2) A subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data; or

(3) Any of these parties furnished data of any description that were not accurate, the price or cost shall be reduced accordingly and the contract shall be modified to reflect the reduction.

(b) Any reduction in the contract price under paragraph (a) of this clause due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which--

(1) The actual subcontract; or

(2) The actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(c)(1) If the Contracting Officer determines under paragraph (a) of this clause that a price or cost reduction should be made, the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted.

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer.

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract.

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2)(i) Except as prohibited by subdivision (c)(2)(ii) of this clause, an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if--

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the "as of" date specified on its Certificate of Current Cost or Pricing Data, and that the data were not submitted before such date.

(ii) An offset shall not be allowed if--

(A) The understated data were known by the Contractor to be understated before the "as of" date specified on its Certificate of Current Cost or Pricing Data; or

(B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data had been submitted before the "as of" date specified on its Certificate of Current Cost or Pricing Data.

(d) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid--

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data that were incomplete, inaccurate, or noncurrent.

(End of clause)

#### 52.215-12 SUBCONTRACTOR COST OR PRICING DATA (OCT 1997)

(a) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modification involving a pricing adjustment expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4, the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1 applies.

(b) The Contractor shall require the subcontractor to certify in substantially the form prescribed in FAR 15.406-2 that, to the best of its knowledge and belief, the data submitted under paragraph (a) of this clause were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(c) In each subcontract that exceeds the threshold for submission of cost or pricing data at FAR 15.403-4, when entered into, the Contractor shall insert either--

(1) The substance of this clause, including this paragraph (c), if paragraph (a) of this clause requires submission of cost or pricing data for the subcontract; or

(2) The substance of the clause at FAR 52.215-13, Subcontractor Cost or Pricing Data--Modifications.

#### 52.215-14 INTEGRITY OF UNIT PRICES (OCT 1997)

(a) Any proposal submitted for the negotiation of prices for items of supplies shall distribute costs within contracts on a basis that ensures that unit prices are in proportion to the items' base cost (e.g., manufacturing or acquisition costs). Any method of distributing costs to line items that distorts unit prices shall not be used. For example, distributing costs equally among line items is not acceptable except when there is little or no variation in base cost. Nothing in this paragraph requires submission of cost or pricing data not otherwise required by law or regulation.

(b) When requested by the Contracting Officer, the Offeror/Contractor shall also identify those supplies that it will not manufacture or to which it will not contribute significant value.

The Contractor shall insert the substance of this clause, less paragraph (b), in all subcontracts for other than: acquisitions at or below the simplified acquisition threshold in FAR Part 2; construction or architect-engineer services under FAR Part 36; utility services under FAR Part 41; services where supplies are not required; commercial items; and petroleum products.

(End of clause)

## 52.215-15 PENSION ADJUSTMENTS AND ASSET REVERSIONS (DEC 1998)

(a) The Contractor shall promptly notify the Contracting Officer in writing when it determines that it will terminate a defined-benefit pension plan or otherwise recapture such pension fund assets.

(b) For segment closings, pension plan terminations, or curtailment of benefits, the adjustment amount shall be the amount measured, assigned, and allocated in accordance with 48 CFR 9904.413-50(c)(12) for contracts and subcontracts that are subject to Cost Accounting Standards (CAS) Board rules and regulations (48 CFR Chapter 99). For contracts and subcontracts that are not subject to CAS, the adjustment amount shall be the amount measured, assigned, and allocated in accordance with 48 CFR 9904.413-50(c)(12), except the numerator of the fraction at 48 CFR 9904.413-50(c)(12)(vi) shall be the sum of the pension plan costs allocated to all non-CAS-covered contracts and subcontracts that are subject to Federal Acquisition Regulation (FAR) Subpart 31.2 or for which cost or pricing data were submitted.

(c) For all other situations where assets revert to the Contractor, or such assets are constructively received by it for any reason, the Contractor shall, at the Government's option, make a refund or give a credit to the Government for its equitable share of the gross amount withdrawn. The Government's equitable share shall reflect the Government's participation in pension costs through those contracts for which cost or pricing data were submitted or that are subject to FAR Subpart 31.2.

(d) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(g).

(End of clause)

## 52.215-18 REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS (OCT 1997)

The Contractor shall promptly notify the Contracting Officer in writing when it determines that it will terminate or reduce a PRB plan. If PRB fund assets revert, or inure, to the Contractor or are constructively received by it under a plan termination or otherwise, the Contractor shall make a refund or give a credit to the Government for its equitable share as required by FAR 31.205-6(o)(6). The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirements of FAR 15.408(j).

(End of clause)

## 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall--

(1) Maintain current, accurate, and complete inventory records of assets and their costs;

- (2) Provide the ACO or designated representative ready access to the records upon request;
- (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
- (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

#### 52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (OCT 1997)

(a) Exceptions from cost or pricing data. (1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Information on modifications of contracts or subcontracts for commercial items. (A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

(1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.

(2) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.

(3) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost or pricing data, the following applies:

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

As soon as practicable after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

(End of clause)

#### 52.216-18 ORDERING. (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from date of award through base period of one year.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

(End of clause)

#### 52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than \$5,000.00, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor:

(1) Any order for a single item in excess of \$2,000,000;

(2) Any order for a combination of items in excess of \$2,000,000; or

(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.



(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 5 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

#### 52.216-22 INDEFINITE QUANTITY. (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum". The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum".

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after one year from date of award.

(End of clause)

#### 52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days prior to contract completion.

(End of clause)

#### 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 days prior to completion of the contract; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 5 years.

(End of clause)

#### 52.219-6 NOTICE OF TOTAL SMALL BUSINESS SET-ASIDE (JUL 1996)

(a) Definition.

"Small business concern," as used in this clause, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the size standards in this solicitation.

(b) General. (1) Offers are solicited only from small business concerns. Offers received from concerns that are not small business concerns shall be considered nonresponsive and will be rejected.

(2) Any award resulting from this solicitation will be made to a small business concern.

(c) Agreement. A small business concern submitting an offer in its own name agrees to furnish, in performing the contract, only end items manufactured or produced by small business concerns in the United States. The term "United States" includes its territories and possessions, the Commonwealth of Puerto Rico, the Trust Territory of the Pacific Islands, and the District of Columbia. If this procurement is processed under simplified acquisition procedures and the total amount of this contract does not exceed \$25,000, a small business concern may furnish the product of any domestic firm. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

#### 52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

(a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.

(b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

Definitions. As used in this contract--

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

(1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;

(2) No material change in disadvantaged ownership and control has occurred since its certification;

(3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

(1) That is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small

business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

#### 52.219-14 LIMITATIONS ON SUBCONTRACTING (DEC 1996)

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--

(1) Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

(2) Supplies (other than procurement from a nonmanufacturer of such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

(3) General construction. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

(4) Construction by special trade contractors. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

#### 52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

(End of clause)

#### 52.222-3 CONVICT LABOR (AUG 1996)

The Contractor agrees not to employ in the performance of this contract any person undergoing a sentence of imprisonment which has been imposed by any court of a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands. This limitation, however, shall not prohibit the employment by the Contractor in the performance of this contract of persons on parole or probation to work at paid employment during the term of their sentence or persons who have been pardoned or who have served their terms. Nor shall it prohibit the employment by the Contractor in the performance of this contract of persons confined for violation of the laws of any of the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if--

(a)(1) The worker is paid or is in an approved work training program on a voluntary basis;

(2) Representatives of local union central bodies or similar labor union organizations have been consulted;

(3) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services; and

(4) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and

(b) The Attorney General of the United States has certified that the work-release laws or regulations of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

(a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.

(b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of \$10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.

(c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding \$100,000 and require subcontractors to include these provisions in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

52.222-6 DAVIS-BACON ACT (FEB 1995)

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a

determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(ii) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis -Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(End of clause)

#### 52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis -Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(End of clause)

#### 52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis -Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis -Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis -Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved

programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(End of clause)

#### 52.222-9 APPRENTICES AND TRAINEES (FEB 1988)

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or



her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(End of clause)

#### 52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

(End of clause)

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988)

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis -Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(d) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

(End of clause)

52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

A breach of the contract clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis -Bacon and Related Act Regulations, or Certification of Eligibility may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

(End of clause)

52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

All rulings and interpretations of the Davis -Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

(End of clause)

52.222-14 DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and

not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

#### 52.222-15 CERTIFICATION OF ELIGIBILITY (FEB 1988)

(a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis -Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis -Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(End of clause)

#### 52.222-17 LABOR STANDARDS FOR CONSTRUCTION WORK--FACILITIES CONTRACTS (FEB 1988)

(a) In the event that construction, alteration, or repair (including painting and decorating) of public buildings or public works is to be performed hereunder, the Contractor shall comply with the following listed clauses of the Federal Acquisition Regulation in performance of such work:

(1) Contract Work Hours and Safety Standards Act--Overtime Compensation at 52.222-4.

(2) Davis -Bacon Act at 52.222-6.

(3) Withholding of Funds at 52.222-7.

(4) Payrolls and Basic Records at 52.222-8.

(5) Apprentices and Trainees at 52.222-9.

(6) Compliance With Copeland Act Requirements at 52.222-10.

(7) Subcontracts (Labor Standards) at 52.222-11.

(8) Contract Termination--Debarment at 52.222-12.

(9) Compliance with Davis -Bacon and Related Act Regulations at 52.222-13.

(10) Disputes Concerning Labor Standards at 52.222-14.

(11) Certification of Eligibility at 52.222-15.

(b) Upon determination by the Contracting Officer that the Davis-Bacon Act is applicable to any item of work to be performed hereunder, a determination of the prevailing wage rates shall be incorporated into the contract by modification.

(c) No construction, alteration, or repair (including painting and decorating) of public buildings or public works shall be performed under this contract without incorporation of the wage determination unless the Contracting Officer authorizes the start of work because of unusual or emergency situations, in which case the wage determination shall be incorporated as soon as possible and made retroactive to the start of the work.

(End of clause)

#### 52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

(a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

#### 52.222-26 EQUAL OPPORTUNITY (APR 2002)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.

(b) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of \$10,000, the Contractor shall comply with paragraphs (b)(1) through (b)(11) of this clause, except for work performed outside the United States by employees who were not recruited within the United States. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi)

layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

(End of clause)

## 52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

(a) Definitions. "Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of \$10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;



(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate records are not required to be maintained.

Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(End of clause)

52.222-35 EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Definitions. As used in this clause--

All employment openings means all positions except executive and top management, those positions that will be filled from within the Contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days duration, and part-time employment.

Executive and top management means any employee--

(1) Whose primary duty consists of the management of the enterprise in which the individual is employed or of a customarily recognized department or subdivision thereof;

(2) Who customarily and regularly directs the work of two or more other employees;

(3) Who has the authority to hire or fire other employees or whose suggestions and recommendations as to the hiring or firing and as to the advancement and promotion or any other change of status of other employees will be given particular weight;

(4) Who customarily and regularly exercises discretionary powers; and

(5) Who does not devote more than 20 percent or, in the case of an employee of a retail or service establishment, who does not devote more than 40 percent of total hours of work in the work week to activities that are not directly and closely related to the performance of the work described in paragraphs (1) through (4) of this definition. This paragraph (5) does not apply in the case of an employee who is in sole charge of an establishment or a physically separated branch establishment, or who owns at least a 20 percent interest in the enterprise in which the individual is employed.

Other eligible veteran means any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized.

Positions that will be filled from within the Contractor's organization means employment openings for which the Contractor will give no consideration to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings the Contractor proposes to fill from regularly established "recall" lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of its organization.

Qualified special disabled veteran means a special disabled veteran who satisfies the requisite skill, experience, education, and other job-related requirements of the employment position such veteran holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

Special disabled veteran means--

(1) A veteran who is entitled to compensation (or who but for the receipt of military retired pay would be entitled to compensation) under laws administered by the Department of Veterans Affairs for a disability--

(i) Rated at 30 percent or more; or

(ii) Rated at 10 or 20 percent in the case of a veteran who has been determined under 38 U.S.C. 3106 to have a serious employment handicap (i.e., a significant impairment of the veteran's ability to prepare for, obtain, or retain employment consistent with the veteran's abilities, aptitudes, and interests); or

(2) A person who was discharged or released from active duty because of a service-connected disability.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days and was discharged or released from active duty with other than a dishonorable discharge, if any part of such active duty occurred--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases; or

(2) Was discharged or released from active duty for a service-connected disability if any part of the active duty was performed--

(i) In the Republic of Vietnam between February 28, 1961, and May 7, 1975; or

(ii) Between August 5, 1964, and May 7, 1975, in all other cases.

(b) General. (1) The Contractor shall not discriminate against the individual because the individual is a special disabled veteran, a veteran of the Vietnam era, or other eligible veteran, regarding any position for which the employee or applicant for employment is qualified. The Contractor shall take affirmative action to employ, advance in employment, and otherwise treat qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans without discrimination based upon their disability or veterans' status in all employment practices such as--

(i) Recruitment, advertising, and job application procedures;

(ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;

(iii) Rate of pay or any other form of compensation and changes in compensation;

(iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;

(v) Leaves of absence, sick leave, or any other leave;

(vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;

(vii) Selection and financial support for training, including apprenticeship, and on-the-job training under 38 U.S.C. 3687, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;

(viii) Activities sponsored by the Contractor including social or recreational programs; and

(ix) Any other term, condition, or privilege of employment.

(2) The Contractor shall comply with the rules, regulations, and relevant orders of the Secretary of Labor issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended (38 U.S.C. 4211 and 4212).

(c) Listing openings. (1) The Contractor shall immediately list all employment openings that exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract, and including those occurring at an establishment of the Contractor other than the one where the contract is being performed, but excluding those of independently operated corporate affiliates, at an

appropriate local public employment service office of the State wherein the opening occurs. Listing employment openings with the U.S. Department of Labor's America's Job Bank shall satisfy the requirement to list jobs with the local employment service office.

(2) The Contractor shall make the listing of employment openings with the local employment service office at least concurrently with using any other recruitment source or effort and shall involve the normal obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing of employment openings does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(3) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State public employment agency in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State agency, it need not advise the State agency of subsequent contracts. The Contractor may advise the State agency when it is no longer bound by this contract clause.

(d) Applicability. This clause does not apply to the listing of employment openings that occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, the Virgin Islands of the United States, and Wake Island.

(e) Postings. (1) The Contractor shall post employment notices in conspicuous places that are available to employees and applicants for employment.

(2) The employment notices shall--

(i) State the rights of applicants and employees as well as the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants who are special disabled veterans, veterans of the Vietnam era, and other eligible veterans; and

(ii) Be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary of Labor), and provided by or through the Contracting Officer.

(3) The Contractor shall ensure that applicants or employees who are special disabled veterans are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled veteran, or may lower the posted notice so that it can be read by a person in a wheelchair).

(4) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement, or other contract understanding, that the Contractor is bound by the terms of the Act and is committed to take affirmative action to employ, and advance in employment, qualified special disabled veterans, veterans of the Vietnam era, and other eligible veterans.

(f) Noncompliance. If the Contractor does not comply with the requirements of this clause, the Government may take appropriate actions under the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(g) Subcontracts. The Contractor shall insert the terms of this clause in all subcontracts or purchase orders of \$25,000 or more unless exempted by rules, regulations, or orders of the Secretary of Labor. The Contractor shall act as specified by the Deputy Assistant Secretary of Labor to enforce the terms, including action for noncompliance.

(End of clause)

## 52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as--

- (i) Recruitment, advertising, and job application procedures;
- (ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;
- (iii) Rates of pay or any other form of compensation and changes in compensation;
- (iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;
- (v) Leaves of absence, sick leave, or any other leave;
- (vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;
- (vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;
- (viii) Activities sponsored by the Contractor, including social or recreational programs; and
- (ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of \$10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

#### 52.222-37 EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS (DEC 2001)

(a) Unless the Contractor is a State or local government agency, the Contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workforce of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled "Federal Contractor Veterans' Employment Report VETS-100."

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending date selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1st of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the Contractor. The invitation shall state that the information is voluntarily provided; that the information will be kept confidential; that disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

#### 52.222-41 SERVICE CONTRACT ACT OF 1965, AS AMENDED (MAY 1989)

(a) Definitions. "Act," as used in this clause, means the Service Contract Act of 1965, as amended (41 U.S.C. 351, et seq.).

"Contractor," as used in this clause or in any subcontract, shall be deemed to refer to the subcontractor, except in the term "Government Prime Contractor."

"Service employee," as used in this clause, means any person engaged in the performance of this contract other than any person employed in a bona fide executive, administrative, or professional capacity, as these terms are defined in Part 541 of Title 29, Code of Federal Regulations, as revised. It includes all such persons regardless of any contractual relationship that may be alleged to exist between a Contractor or subcontractor and such persons.

(b) Applicability. This contract is subject to the following provisions and to all other applicable provisions of the Act and regulations of the Secretary of Labor (29 CFR Part 4). This clause does not apply to contracts or subcontracts administratively exempted by the Secretary of Labor or exempted by 41 U.S.C. 356, as interpreted in Subpart C of 29 CFR Part 4.

(c) Compensation. (1) Each service employee employed in the performance of this contract by the Contractor or any subcontractor shall be paid not less than the minimum monetary wages and shall be furnished fringe benefits in accordance with the wages and fringe benefits determined by the Secretary of Labor, or authorized representative, as specified in any wage determination attached to this contract.

(2)(i) If a wage determination is attached to this contract, the Contractor shall classify any class of service employee which is not listed therein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination) so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed class of employees shall be paid the monetary wages and furnished the fringe benefits as are determined pursuant to the procedures in this paragraph (c).

(ii) This conforming procedure shall be initiated by the Contractor prior to the performance of contract work by the unlisted class of employee. The Contractor shall submit Standard Form (SF) 1444, Request For Authorization of Additional Classification and Rate, to the Contracting Officer no later than 30 days after the unlisted class of employee performs any contract work. The Contracting Officer shall review the proposed classification and rate and promptly submit the completed SF 1444 (which must include information regarding the agreement or disagreement of the employees' authorized representatives or the employees themselves together with the agency recommendation), and all pertinent information to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor. The Wage and Hour Division will approve, modify, or disapprove the action or render a final determination in the event of disagreement within 30 days of receipt or will notify the Contracting Officer within 30 days of receipt that additional time is necessary.

(iii) The final determination of the conformance action by the Wage and Hour Division shall be transmitted to the Contracting Officer who shall promptly notify the Contractor of the action taken. Each affected employee shall be furnished by the Contractor with a written copy of such determination or it shall be posted as a part of the wage determination.

(iv)(A) The process of establishing wage and fringe benefit rates that bear a reasonable relationship to those listed in a wage determination cannot be reduced to any single formula. The approach used may vary from wage determination to wage determination depending on the circumstances. Standard wage and salary administration practices which rank various job classifications by pay grade pursuant to point schemes or other job factors may, for example, be relied upon. Guidance may also be obtained from the way different jobs are rated under Federal pay systems (Federal Wage Board Pay System and the General Schedule) or from other wage determinations issued in the same locality. Basic to the establishment of any conformable wage rate(s) is the concept that a pay relationship should be maintained between job classifications based on the skill required and the duties performed.

(B) In the case of a contract modification, an exercise of an option, or extension of an existing contract, or in any other case where a Contractor succeeds a contract under which the classification in question was previously conformed

pursuant to paragraph (c) of this clause, a new conformed wage rate and fringe benefits may be assigned to the conformed classification by indexing (i.e., adjusting) the previous conformed rate and fringe benefits by an amount equal to the average (mean) percentage increase (or decrease, where appropriate) between the wages and fringe benefits specified for all classifications to be used on the contract which are listed in the current wage determination, and those specified for the corresponding classifications in the previously applicable wage determination. Where conforming actions are accomplished in accordance with this paragraph prior to the performance of contract work by the unlisted class of employees, the Contractor shall advise the Contracting Officer of the action taken but the other procedures in subdivision (c)(2)(ii) of this clause need not be followed.

(C) No employee engaged in performing work on this contract shall in any event be paid less than the currently applicable minimum wage specified under section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended.

(v) The wage rate and fringe benefits finally determined under this subparagraph (c)(2) of this clause shall be paid to all employees performing in the classification from the first day on which contract work is performed by them in the classification. Failure to pay the unlisted employees the compensation agreed upon by the interested parties and/or finally determined by the Wage and Hour Division retroactive to the date such class of employees commenced contract work shall be a violation of the Act and this contract.

(vi) Upon discovery of failure to comply with subparagraph (c)(2) of this clause, the Wage and Hour Division shall make a final determination of conformed classification, wage rate, and/or fringe benefits which shall be retroactive to the date such class or classes of employees commenced contract work.

(3) Adjustment of Compensation. If the term of this contract is more than 1 year, the minimum monetary wages and fringe benefits required to be paid or furnished thereunder to service employees under this contract shall be subject to adjustment after 1 year and not less often than once every 2 years, under wage determinations issued by the Wage and Hour Division.

(d) Obligation to Furnish Fringe Benefits. The Contractor or subcontractor may discharge the obligation to furnish fringe benefits specified in the attachment or determined under subparagraph (c)(2) of this clause by furnishing equivalent combinations of bona fide fringe benefits, or by making equivalent or differential cash payments, only in accordance with Subpart D of 29 CFR Part 4.

(e) Minimum Wage. In the absence of a minimum wage attachment for this contract, neither the Contractor nor any subcontractor under this contract shall pay any person performing work under this contract (regardless of whether the person is a service employee) less than the minimum wage specified by section 6(a)(1) of the Fair Labor Standards Act of 1938. Nothing in this clause shall relieve the Contractor or any subcontractor of any other obligation under law or contract for payment of a higher wage to any employee.

(f) Successor Contracts. If this contract succeeds a contract subject to the Act under which substantially the same services were furnished in the same locality and service employees were paid wages and fringe benefits provided for in a collective bargaining agreement, in the absence of the minimum wage attachment for this contract setting forth such collectively bargained wage rates and fringe benefits, neither the Contractor nor any subcontractor under this contract shall pay any service employee performing any of the contract work (regardless of whether or not such employee was employed under the predecessor contract), less than the wages and fringe benefits provided for in such collective bargaining agreement, to which such employee would have been entitled if employed under the predecessor contract, including accrued wages and fringe benefits and any prospective increases in wages and fringe benefits provided for under such agreement. No Contractor or subcontractor under this contract may be relieved of the foregoing obligation unless the limitations of 29 CFR 4.1b(b) apply or unless the Secretary of Labor or the Secretary's authorized representative finds, after a hearing as provided in 29 CFR 4.10 that the wages and/or fringe benefits provided for in such agreement are substantially at variance with those which prevail for services of a character similar in the locality, or determines, as provided in 29 CFR 4.11, that the collective bargaining agreement applicable to service employees employed under the predecessor contract was not entered into as a result of arm's length negotiations. Where it is found in accordance with the review procedures provided in 29 CFR 4.10 and/or 4.11



and Parts 6 and 8 that some or all of the wages and/or fringe benefits contained in a predecessor Contractor's collective bargaining agreement are substantially at variance with those which prevail for services of a character similar in the locality, and/or that the collective bargaining agreement applicable to service employees employed under the predecessor contract was not entered into as a result of arm's length negotiations, the Department will issue a new or revised wage determination setting forth the applicable wage rates and fringe benefits. Such determination shall be made part of the contract or subcontract, in accordance with the decision of the Administrator, the Administrative Law Judge, or the Board of Service Contract Appeals, as the case may be, irrespective of whether such issuance occurs prior to or after the award of a contract or subcontract (53 Comp. Gen. 401 (1973)). In the case of a wage determination issued solely as a result of a finding of substantial variance, such determination shall be effective as of the date of the final administrative decision.

(g) Notification to Employees. The Contractor and any subcontractor under this contract shall notify each service employee commencing work on this contract of the minimum monetary wage and any fringe benefits required to be paid pursuant to this contract, or shall post the wage determination attached to this contract. The poster provided by the Department of Labor (Publication WH 1313) shall be posted in a prominent and accessible place at the worksite. Failure to comply with this requirement is a violation of section 2(a)(4) of the Act and of this contract.

(h) Safe and Sanitary Working Conditions. The Contractor or subcontractor shall not permit any part of the services called for by this contract to be performed in buildings or surroundings or under working conditions provided by or under the control or supervision of the Contractor or subcontractor which are unsanitary, hazardous, or dangerous to the health or safety of the service employees. The Contractor or subcontractor shall comply with the safety and health standards applied under 29 CFR Part 1925.

(i) Records. (1) The Contractor and each subcontractor performing work subject to the Act shall make and maintain for 3 years from the completion of the work, and make them available for inspection and transcription by authorized representatives of the Wage and Hour Division, Employment Standards Administration, a record of the following:

(i) For each employee subject to the Act--

(A) Name and address and social security number;

(B) Correct work classification or classifications, rate or rates of monetary wages paid and fringe benefits provided, rate or rates of payments in lieu of fringe benefits, and total daily and weekly compensation;

(C) Daily and weekly hours worked by each employee; and

(D) Any deductions, rebates, or refunds from the total daily or weekly compensation of each employee.

(ii) For those classes of service employees not included in any wage determination attached to this contract, wage rates or fringe benefits determined by the interested parties or by the Administrator or authorized representative under the terms of paragraph (c) of this clause. A copy of the report required by subdivision (c)(2)(ii) of this clause will fulfill this requirement.

(iii) Any list of the predecessor Contractor's employees which had been furnished to the Contractor as prescribed by paragraph (n) of this clause.

(2) The Contractor shall also make available a copy of this contract for inspection or transcription by authorized representatives of the Wage and Hour Division.

(3) Failure to make and maintain or to make available these records for inspection and transcription shall be a violation of the regulations and this contract, and in the case of failure to produce these records, the Contracting Officer, upon direction of the Department of Labor and notification to the Contractor, shall take action to cause suspension of any further payment or advance of funds until the violation ceases.

(4) The Contractor shall permit authorized representatives of the Wage and Hour Division to conduct interviews with employees at the worksite during normal working hours.

(j) Pay Periods. The Contractor shall unconditionally pay to each employee subject to the Act all wages due free and clear and without subsequent deduction (except as otherwise provided by law or regulations, 29 CFR Part 4), rebate, or kickback on any account. These payments shall be made no later than one pay period following the end of the regular pay period in which the wages were earned or accrued. A pay period under this Act may not be of any duration longer than semi-monthly.

(k) Withholding of Payments and Termination of Contract. The Contracting Officer shall withhold or cause to be withheld from the Government Prime Contractor under this or any other Government contract with the Prime Contractor such sums as an appropriate official of the Department of Labor requests or such sums as the Contracting Officer decides may be necessary to pay underpaid employees employed by the Contractor or subcontractor. In the event of failure to pay any employees subject to the Act all or part of the wages or fringe benefits due under the Act, the Contracting Officer may, after authorization or by direction of the Department of Labor and written notification to the Contractor, take action to cause suspension of any further payment or advance of funds until such violations have ceased. Additionally, any failure to comply with the requirements of this clause may be grounds for termination of the right to proceed with the contract work. In such event, the Government may enter into other contracts or arrangements for completion of the work, charging the Contractor in default with any additional cost.

(l) Subcontracts. The Contractor agrees to insert this clause in all subcontracts subject to the Act.

(m) Collective Bargaining Agreements Applicable to Service Employees. If wages to be paid or fringe benefits to be furnished any service employees employed by the Government Prime Contractor or any subcontractor under the contract are provided for in a collective bargaining agreement which is or will be effective during any period in which the contract is being performed, the Government Prime Contractor shall report such fact to the Contracting Officer, together with full information as to the application and accrual of such wages and fringe benefits, including any prospective increases, to service employees engaged in work on the contract, and a copy of the collective bargaining agreement. Such report shall be made upon commencing performance of the contract, in the case of collective bargaining agreements effective at such time, and in the case of such agreements or provisions or amendments thereof effective at a later time during the period of contract performance such agreements shall be reported promptly after negotiation thereof.

(n) Seniority List. Not less than 10 days prior to completion of any contract being performed at a Federal facility where service employees may be retained in the performance of the succeeding contract and subject to a wage determination which contains vacation or other benefit provisions based upon length of service with a Contractor (predecessor) or successor (29 CFR 4.173), the incumbent Prime Contractor shall furnish the Contracting Officer a certified list of the names of all service employees on the Contractor's or subcontractor's payroll during the last month of contract performance. Such list shall also contain anniversary dates of employment on the contract either with the current or predecessor Contractors of each such service employee. The Contracting Officer shall turn over such list to the successor Contractor at the commencement of the succeeding contract.

(o) Rulings and Interpretations. Rulings and interpretations of the Act are contained in Regulations, 29 CFR Part 4.

(p) Contractor's Certification. (1) By entering into this contract, the Contractor (and officials thereof) certifies that neither it (nor he or she) nor any person or firm who has a substantial interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of the sanctions imposed under section 5 of the Act.

(2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract under section 5 of the Act.

(3) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

(q) Variations, Tolerances, and Exemptions Involving Employment. Notwithstanding any of the provisions in paragraphs (b) through (o) of this clause, the following employees may be employed in accordance with the following variations, tolerances, and exemptions, which the Secretary of Labor, pursuant to section 4(b) of the Act prior to its amendment by Pub. L. 92-473, found to be necessary and proper in the public interest or to avoid serious impairment of the conduct of Government business:

(1) Apprentices, student-learners, and workers whose earning capacity is impaired by age, physical or mental deficiency, or injury may be employed at wages lower than the minimum wages otherwise required by section 2(a)(1) or 2(b)(1) of the Act without diminishing any fringe benefits or cash payments in lieu thereof required under section 2(a)(2) of the Act, in accordance with the conditions and procedures prescribed for the employment of apprentices, student-learners, handicapped persons, and handicapped clients of sheltered workshops under section 14 of the Fair Labor Standards Act of 1938, in the regulations issued by the Administrator (29 CFR Parts 520, 521, 524, and 525).

(2) The Administrator will issue certificates under the Act for the employment of apprentices, student-learners, handicapped persons, or handicapped clients of sheltered workshops not subject to the Fair Labor Standards Act of 1938, or subject to different minimum rates of pay under the two acts, authorizing appropriate rates of minimum wages (but without changing requirements concerning fringe benefits or supplementary cash payments in lieu thereof), applying procedures prescribed by the applicable regulations issued under the Fair Labor Standards Act of 1938 (29 CFR Parts 520, 521, 524, and 525).

(3) The Administrator will also withdraw, annul, or cancel such certificates in accordance with the regulations in 29 CFR Parts 525 and 528.

(r) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed and individually registered in a bona fide apprenticeship program registered with a State Apprenticeship Agency which is recognized by the U.S. Department of Labor, or if no such recognized agency exists in a State, under a program registered with the Bureau of Apprenticeship and Training, Employment and Training Administration, U.S. Department of Labor. Any employee who is not registered as an apprentice in an approved program shall be paid the wage rate and fringe benefits contained in the applicable wage determination for the journeyman classification of work actually performed. The wage rates paid apprentices shall not be less than the wage rate for their level of progress set forth in the registered program, expressed as the appropriate percentage of the journeyman's rate contained in the applicable wage determination. The allowable ratio of apprentices to journeymen employed on the contract work in any craft classification shall not be greater than the ratio permitted to the Contractor as to his entire work force under the registered program.

(s) Tips. An employee engaged in an occupation in which the employee customarily and regularly receives more than \$30 a month in tips may have the amount of these tips credited by the employer against the minimum wage required by section 2(a)(1) or section 2(b)(1) of the Act, in accordance with section 3(m) of the Fair Labor Standards Act and Regulations, 29 CFR Part 531. However, the amount of credit shall not exceed \$1.34 per hour beginning January 1, 1981. To use this provision--

(1) The employer must inform tipped employees about this tip credit allowance before the credit is utilized;

(2) The employees must be allowed to retain all tips (individually or through a pooling arrangement and regardless of whether the employer elects to take a credit for tips received);

(3) The employer must be able to show by records that the employee receives at least the applicable Service Contract Act minimum wage through the combination of direct wages and tip credit; and

(4) The use of such tip credit must have been permitted under any predecessor collective bargaining agreement applicable by virtue of section 4(c) of the Act.

Disputes Concerning Labor Standards. The U.S. Department of Labor has set forth in 29 CFR Parts 4, 6, and 8 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(End of clause)

52.222-43 FAIR LABOR STANDARDS ACT AND SERVICE CONTRACT ACT--PRICE ADJUSTMENT  
(MULTIPLE YEAR AND OPTION CONTRACTS) (MAY 1989)

(a) This clause applies to both contracts subject to area prevailing wage determinations and contracts subject to collective bargaining agreements.

(b) The Contractor warrants that the prices in this contract do not include any allowance for any contingency to cover increased costs for which adjustment is provided under this clause.

(c) The wage determination, issued under the Service Contract Act of 1965, as amended, (41 U.S.C. 351, et seq.), by the Administrator, Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, current on the anniversary date of a multiple year contract or the beginning of each renewal option period, shall apply to this contract. If no such determination has been made applicable to this contract, then the Federal minimum wage as established by section 6(a)(1) of the Fair Labor Standards Act of 1938, as amended, (29 U.S.C. 206) current on the anniversary date of a multiple year contract or the beginning of each renewal option period, shall apply to this contract.

(d) The contract price or contract unit price labor rates will be adjusted to reflect the Contractor's actual increase or decrease in applicable wages and fringe benefits to the extent that the increase is made to comply with or the decrease is voluntarily made by the Contractor as a result of:

(1) The Department of Labor wage determination applicable on the anniversary date of the multiple year contract, or at the beginning of the renewal option period. For example, the prior year wage determination required a minimum wage rate of \$4.00 per hour. The Contractor chose to pay \$4.10. The new wage determination increases the minimum rate to \$4.50 per hour. Even if the Contractor voluntarily increases the rate to \$4.75 per hour, the allowable price adjustment is \$.40 per hour;

(2) An increased or decreased wage determination otherwise applied to the contract by operation of law; or

(3) An amendment to the Fair Labor Standards Act of 1938 that is enacted after award of this contract, affects the minimum wage, and becomes applicable to this contract under law.

(e) Any adjustment will be limited to increases or decreases in wages and fringe benefits as described in paragraph (c) of this clause, and the accompanying increases or decreases in social security and unemployment taxes and workers' compensation insurance, but shall not otherwise include any amount for general and administrative costs, overhead, or profit.

(f) The Contractor shall notify the Contracting Officer of any increase claimed under this clause within 30 days after receiving a new wage determination unless this notification period is extended in writing by the Contracting Officer. The Contractor shall promptly notify the Contracting Officer of any decrease under this clause, but nothing in the clause shall preclude the Government from asserting a claim within the period permitted by law. The notice shall contain a statement of the amount claimed and any relevant supporting data, including payroll records, that the Contracting Officer may reasonably require. Upon agreement of the parties, the contract price or contract unit price labor rates shall be modified in writing. The Contractor shall continue performance pending agreement on or

determination of any such adjustment and its effective date.

(g) The Contracting Officer or an authorized representative shall have access to and the right to examine any directly pertinent books, documents, papers and records of the Contractor until the expiration of 3 years after final payment under the contract.

(End of clause)

#### 52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)

(a) "Hazardous material", as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material	Identification No.
(If none, insert "None")	
_____	_____
_____	_____
_____	_____

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(End of clause)

#### 52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (APR 1998)

(a) Executive Order 12856 of August 3, 1993, requires Federal facilities to comply with the provisions of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)(42 U.S.C. 11001-11050) and the Pollution Prevention Act of 1990 (PPA)(42 U.S.C. 13101-13109).

(b) The Contractor shall provide all information needed by the Federal facility to comply with the emergency planning reporting requirements of Section 302 of EPCRA; the emergency notice requirements of Section 304 of EPCRA; the list of Material Safety Data Sheets required by Section 311 of EPCRA; the emergency and hazardous chemical inventory forms of Section 312 of EPCRA; the toxic chemical release inventory of Section 313 of EPCRA, which includes the reduction and recycling information required by Section 6607 of PPA; and the toxic chemical reduction goals requirements of Section 3-302 of Executive Order 12856.

(End of clause)

#### 52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

(a) Definitions. As used in this clause --

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession, or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-- within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the workplace:

(i) Taking appropriate personnel action against such employee, up to and including termination; or

(ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this clause.

(c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.

(d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of

contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

#### 52.223-14 TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.

(b) A Contractor owned or operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--

(1) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

(2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

(3) The facility does not meet the reporting thresholds of toxic chemicals established under of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

(4) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

(5) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt--

(1) The Contractor shall notify the Contracting Officer; and

(2) The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (i) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.

(d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.

(e) Except for acquisitions of commercial items, as defined in FAR Part 2, the Contractor shall--

(1) For competitive subcontracts expected to exceed \$100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and



(2) Include in any resultant subcontract exceeding \$100,000 (including all options), the substance of this clause, except this paragraph (e).

(End of clause)

## 52.225-5 TRADE AGREEMENTS (NOV 2002)

(a) Definitions. As used in this clause.

Caribbean Basin country means any of the following countries: Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, British Virgin Islands, Costa Rica, Dominica, El Salvador, Grenada, Guatemala, Guyana, Haiti, Jamaica, Montserrat, Netherlands Antilles, Nicaragua, Panama, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.

Caribbean Basin country end product means an article that--

(1) Is wholly the growth, product, or manufacture of a Caribbean Basin country; or

(2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a Caribbean Basin country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself. The term excludes products that are excluded from duty-free treatment for Caribbean countries under 19 U.S.C. 2703(b), which presently are--

(i) Textiles and apparel articles that are subject to textile agreements;

(ii) Footwear, handbags, luggage, flat goods, work gloves, and leather wearing apparel not designated as eligible articles for the purpose of the Generalized System of Preferences under Title V of the Trade Act of 1974;

(iii) Tuna, prepared or preserved in any manner in airtight containers;

(iv) Petroleum, or any product derived from petroleum; and

(v) Watches and watch parts (including cases, bracelets, and straps) of whatever type including, but not limited to, mechanical, quartz digital, or quartz analog, if such watches or watch parts contain any material that is the product of any country to which the Harmonized Tariff Schedule of the United States (HTSUS) column 2 rates of duty apply.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark, Djibouti, Equatorial Guinea.

Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Honduras, Hong Kong, Iceland, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country end product means an article that--

- (1) Is wholly the growth, product, or manufacture of a designated country; or
- (2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

End product means supplies delivered under a line item of a Government contract.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country end product means an article that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of an article that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed. The term refers to a product offered for purchase under a supply contract, but for purposes of calculating the value of the end product includes services, (except transportation services) incidental to the article, provided that the value of those incidental services does not exceed that of the article itself.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

U.S.-made end product means an article that is mined, produced, or manufactured in the United States or that is substantially transformed in the United States into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was transformed.,

(b) Implementation. This clause implements the Trade, Agreements Act (19 U.S.C. 2501, et seq.) and the North American Free Trade Agreement Implementation Act of 1993, (NAFTA) (19 U.S.C. 3301 note), by restricting the acquisition of end products that are not U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products.,

(c) Delivery of end products. The Contracting Officer has determined that the Trade Agreements Act and NAFTA apply to this acquisition. Unless otherwise specified, these trade agreements apply to all items in the Schedule. The Contractor shall deliver under this contract only U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products except to the extent that, in its offer, it specified delivery of other end products in the provision entitled "Trade Agreements Certificate."

(End of clause)

52.225-11 BUY AMERICAN ACT--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JUL 2002)

(a) Definitions. As used in this clause--

Component means an article, material, or supply incorporated directly into a construction material.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

- (1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or
- (2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark.

Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a designated country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

Domestic construction material means--

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country and NAFTA country construction materials.

(2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows:

None

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act.

(1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1:			
Foreign construction material....	.....	.....	.....
Domestic construction material....	.....	.....	.....
Item 2:			
Foreign construction material....	.....	.....	.....
Domestic construction material....	.....	.....	.....

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the government of Iraq.

(c) The Contractor shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

#### 52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (JUN 2000)

(a) Definitions. As used in this clause:

"Indian" means any person who is a member of any Indian tribe, band, group, pueblo or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any "Native" as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

"Indian organization" means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C., chapter 17.

"Indian-owned economic enterprise" means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitute not less than 51 percent of the enterprise.

"Indian tribe" means any Indian tribe, band, group, pueblo or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1542(c).

"Interested party" means a prime contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(b) The Contractor shall use its best efforts to give Indian organizations and Indian-owned economic enterprises (25 U.S.C. 1544) the maximum practicable opportunity to participate in the subcontracts it awards to the fullest extent consistent with efficient performance of its contract.

(1) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status. In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs (BIA), Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street, NW., MS 2626-MIB, Washington, DC 20240-4000.

The BIA will determine the eligibility and notify the Contracting Officer. No incentive payment will be made within 50 working days of subcontract award or while a challenge is pending. If a subcontractor is determined to be an ineligible participant, no incentive payment will be made under the Indian Incentive Program.

(2) The Contractor may request an adjustment under the Indian Incentive Program to the following:

- (i) The estimated cost of a cost-type contract.
- (ii) The target cost of a cost-plus-incentive-fee prime contract.
- (iii) The target cost and ceiling price of a fixed-price incentive prime contract.
- (iv) The price of a firm-fixed-price prime contract.

(3) The amount of the adjustment to the prime contract is 5 percent of the estimated cost, target cost, or firm-fixed-price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(4) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(c) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor. The Contracting Officer will seek funding in accordance with agency procedures.

(End of clause)

#### 52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

(End of clause)

## 52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

(iv) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at (FAR) 2.101 to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

(End of clause)

## 52.228-1 BID GUARANTEE (SEP 1996)

(a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

(b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.-

(c) The amount of the bid guarantee shall be 20 percent of the bid price or \$3 million, whichever is less.-

(d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.-

(e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

(End of clause)

## 52.228-2 ADDITIONAL BOND SECURITY (OCT 1997)

The Contractor shall promptly furnish additional security required to protect the Government and persons supplying labor or materials under this contract if--

(a) Any surety upon any bond, or issuing financial institution for other security, furnished with this contract



becomes unacceptable to the Government.

- (b) Any surety fails to furnish reports on its financial condition as required by the Government;
- (c) The contract price is increased so that the penal sum of any bond becomes inadequate in the opinion of the Contracting Officer; or
- (d) An irrevocable letter of credit (ILC) used as security will expire before the end of the period of required security. If the Contractor does not furnish an acceptable extension or replacement ILC, or other acceptable substitute, at least 30 days before an ILC's scheduled expiration, the Contracting officer has the right to immediately draw on the ILC.

(End of clause)

#### 52.228-5 INSURANCE--WORK ON A GOVERNMENT INSTALLATION (JAN 1997)

- (a) The Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance required in the Schedule or elsewhere in the contract.
- (b) Before commencing work under this contract, the Contractor shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective (1) for such period as the laws of the State in which this contract is to be performed prescribe, or (2) until 30 days after the insurer or the Contractor gives written notice to the Contracting Officer, whichever period is longer.
- (c) The Contractor shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

(End of clause)

#### 52.228-11 PLEDGES OF ASSETS (FEB 1992)

- (a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--
  - (1) Pledge of assets; and
  - (2) Standard Form 28, Affidavit of Individual Surety.
- (b) Pledges of assets from each person acting as an individual surety shall be in the form of--
  - (1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;
  - (2) A recorded lien on real estate. The offeror will be required to provide--
    - (i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United

States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owners; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);

(ii) Evidence of the amount due under any encumbrance shown in the evidence of title;

(iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6 months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

#### 52.228-12 PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS. (OCT 1995)

In accordance with Section 806(a)(3) of Pub. L. 102-190, as amended by Sections 2091 and 8105 of Pub. L. 103-355, upon the request of a prospective subcontractor or supplier offering to furnish labor or material for the performance of this contract for which a payment bond has been furnished to the Government pursuant to the Miller Act, the Contractor shall promptly provide a copy of such payment bond to the requester.

(End of clause)

#### 52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than \$25 million in the past year, ILCs over \$5 million must be confirmed by another acceptable financial institution that had letter of credit business of less than \$25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

\_\_\_\_\_  
[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date \_\_\_\_\_

IRREVOCABLE LETTER OF CREDIT NO. \_\_\_\_\_

Account party's name \_\_\_\_\_

Account party's address \_\_\_\_\_

For Solicitation No. \_\_\_\_\_ (for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States \$ \_\_\_\_\_. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on \_\_\_\_\_, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of

Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of \_\_\_\_\_ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

\_\_\_\_\_  
[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

\_\_\_\_\_  
[Confirming Financial Institution's Letterhead or Name and Address]

(Date) \_\_\_\_\_

Our Letter of Credit Advice Number \_\_\_\_\_

Beneficiary: \_\_\_\_\_ [U.S. Government agency]

Issuing Financial Institution: \_\_\_\_\_

Issuing Financial Institution's LC No.: \_\_\_\_\_

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by \_\_\_\_\_ [name of issuing financial institution] for drawings of up to United States dollars \_\_\_\_\_/U.S. \$ \_\_\_\_\_ and expiring with our close of business on \_\_\_\_\_ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at \_\_\_\_\_.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration

date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of \_\_\_\_\_ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

\_\_\_\_\_

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

\_\_\_\_\_

[City, State]

(Date) \_\_\_\_\_

[Name and address of financial institution]

Pay to the order of \_\_\_\_\_ [Beneficiary Agency] \_\_\_\_\_ the sum of United States  
\$ \_\_\_\_\_. This draft is drawn under Irrevocable Letter of Credit No.

\_\_\_\_\_.

\_\_\_\_\_

[Beneficiary Agency]

By: \_\_\_\_\_

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is \$100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c)). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

#### 52.228-16 PERFORMANCE AND PAYMENT BONDS--OTHER THAN CONSTRUCTION (JUL 2000)

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract or, for requirements contracts, the price payable for the estimated quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) The Contractor shall furnish a performance bond (Standard Form 1418) for the protection of the Government in an amount equal to 100 percent of the original contract price and a payment bond (Standard Form 1416) in an amount equal to 100 percent of the original contract price.

(c) The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within 10 days, but in any event, before starting work.

(d) The Government may require additional performance and payment bond protection if the contract price is increased. The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bonds or to obtain additional bonds.

(e) The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register, or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW., 2nd Floor, West Wing, Washington, DC 20227.

(End of clause)

#### 52.229-3 FEDERAL, STATE, AND LOCAL TAXES (JAN 1991)

(a) "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties," as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax," as used in this clause, means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax," as used in this clause, means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of any after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds \$250.

(g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or

duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.

(h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

#### 52.229-5 TAXES--CONTRACTS PERFORMED IN U.S. POSSESSIONS OR PUERTO RICO (APR 1984)

The term "local taxes," as used in the Federal, State, and local taxes clause of this contract, includes taxes imposed by a possession of the United States or by Puerto Rico.

(End of clause)

#### 52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE MAR 1995)--EFARS

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region \_\_\_\_\_. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(End of clause)



## 52.232-1 PAYMENTS (APR 1984)

The Government shall pay the Contractor, upon the submission of proper invoices or vouchers, the prices stipulated in this contract for supplies delivered and accepted or services rendered and accepted, less any deductions provided in this contract. Unless otherwise specified in this contract, payment shall be made on partial deliveries accepted by the Government if--

- (a) The amount due on the deliveries warrants it; or
- (b) The Contractor requests it and the amount due on the deliveries is at least \$1,000 or 50 percent of the total contract price.

(End of clause)

## 52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (SEP 2002)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) All payments due to subcontractors and suppliers from previous payments received under the contract have been made, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;

(3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and

(4) This certification is not to be construed as final acceptance of a subcontractor's performance.

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as--

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

(End of clause)

#### 52.232-8 DISCOUNTS FOR PROMPT PAYMENT (FEB 2002)

(a) Discounts for prompt payment will not be considered in the evaluation of offers. However, any offered discount will form a part of the award, and will be taken if payment is made within the discount period indicated in the offer by the offeror. As an alternative to offering a discount for prompt payment in conjunction with the offer, offerors awarded contracts may include discounts for prompt payment on individual invoices.

(b) In connection with any discount offered for prompt payment, time shall be computed from the date of the invoice. If the Contractor has not placed a date on the invoice, the due date shall be calculated from the date the designated billing office receives a proper invoice, provided the agency annotates such invoice with the date of receipt at the time of receipt. For the purpose of computing the discount earned, payment shall be considered to have been made on the date that appears on the payment check or, for an electronic funds transfer, the specified payment date. When

the discount date falls on a Saturday, Sunday, or legal holiday when Federal Government offices are closed and Government business is not expected to be conducted, payment may be made on the following business day.

(End of clause)

#### 52.232-9 LIMITATION ON WITHHOLDING OF PAYMENTS (APR 1984)

If more than one clause or Schedule term of this contract authorizes the temporary withholding of amounts otherwise payable to the Contractor for supplies delivered or services performed, the total of the amounts withheld at any one time shall not exceed the greatest amount that may be withheld under any one clause or Schedule term at that time; provided, that this limitation shall not apply to--

- (a) Withholdings pursuant to any clause relating to wages or hours of employees;
- (b) Withholdings not specifically provided for by this contract;
- (c) The recovery of overpayments; and
- (d) Any other withholding for which the Contracting Officer determines that this limitation is inappropriate.

(End of clause)

#### 52.232-11 EXTRAS (APR 1984)

Except as otherwise provided in this contract, no payment for extras shall be made unless such extras and the price therefore have been authorized in writing by the Contracting Officer.

(End of clause)

#### 52.232-16 PROGRESS PAYMENTS (DEC 2002)

The Government will make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts of \$2,500 or more approved by the Contracting Officer, under the following conditions:

- (a) Computation of amounts. (1) Unless the Contractor requests a smaller amount, the Government will compute each progress payment as 80 percent of the Contractor's total costs incurred under this contract whether or not actually paid, plus financing payments to subcontractors (see paragraph (j) of this clause), less the sum of all previous progress payments made by the Government under this contract. The Contracting Officer will consider cost of money that would be allowable under FAR 31.205-10 as an incurred cost for progress payment purposes.
- (2) The amount of financing and other payments for supplies and services purchased directly for the contract are limited to the amounts that have been paid by cash, check, or other forms of payment, or that are determined due and will be paid to subcontractors--
- (i) In accordance with the terms and conditions of a subcontract or invoice; and

- (ii) Ordinarily within 30 days of the submission of the Contractor's payment request to the Government.
- (3) The Government will exclude accrued costs of Contractor contributions under employee pension plans until actually paid unless--
  - (i) The Contractor's practice is to make contributions to the retirement fund quarterly or more frequently; and
  - (ii) The contribution does not remain unpaid 30 days after the end of the applicable quarter or shorter payment period (any contribution remaining unpaid shall be excluded from the Contractor's total costs for progress payments until paid).
- (4) The Contractor shall not include the following in total costs for progress payment purposes in paragraph (a)(1)(i) of this clause:
  - (i) Costs that are not reasonable, allocable to this contract, and consistent with sound and generally accepted accounting principles and practices.
  - (ii) Costs incurred by subcontractors or suppliers.
  - (iii) Costs ordinarily capitalized and subject to depreciation or amortization except for the properly depreciated or amortized portion of such costs.
  - (iv) Payments made or amounts payable to subcontractors or suppliers, except for --
    - (A) completed work, including partial deliveries, to which the Contractor has acquired title; and
    - (B) Work under cost-reimbursement or time-and-material subcontracts to which the Contractor has acquired title.
- (5) The amount of unliquidated progress payments may exceed neither (i) the progress payments made against incomplete work (including allowable unliquidated progress payments to subcontractors) nor
  - (ii) the value, for progress payment purposes, of the incomplete work. Incomplete work shall be considered to be the supplies and services required by this contract, for which delivery and invoicing by the Contractor and acceptance by the Government are incomplete.
- (6) The total amount of progress payments shall not exceed 80 percent of the total contract price.
- (7) If a progress payment or the unliquidated progress payments exceed the amounts permitted by subparagraphs (a)(4) or (a)(5) above, the Contractor shall repay the amount of such excess to the Government on demand.
- (8) Notwithstanding any other terms of the contract, the Contractor agrees not to request progress payments in dollar amounts of less than \$2,500. The Contracting Officer may make exceptions.
  - (b) Liquidation. Except as provided in the Termination for Convenience of the Government clause, all progress payments shall be liquidated by deducting from any payment under this contract, other than advance or progress payments, the unliquidated progress payments, or 80 percent of the amount invoiced, whichever is less. The Contractor shall repay to the Government any amounts required by a retroactive price reduction, after computing liquidations and payments on past invoices at the reduced prices and adjusting the unliquidated progress payments accordingly. The Government reserves the right to unilaterally change from the ordinary liquidation rate to an alternate rate when deemed appropriate for proper contract financing.
  - (c) Reduction or suspension. The Contracting Officer may reduce or suspend progress payments, increase the rate of liquidation, or take a combination of these actions, after finding on substantial evidence any of the following

conditions:

(1) The Contractor failed to comply with any material requirement of this contract (which includes paragraphs (f) and (g) below).

(2) Performance of this contract is endangered by the Contractor's

(i) failure to make progress or

(ii) unsatisfactory financial condition.

(3) Inventory allocated to this contract substantially exceeds reasonable requirements.

(4) The Contractor is delinquent in payment of the costs of performing this contract in the ordinary course of business.

(5) The unliquidated progress payments exceed the fair value of the work accomplished on the undelivered portion of this contract.

(6) The Contractor is realizing less profit than that reflected in the establishment of any alternate liquidation rate in paragraph (b) above, and that rate is less than the progress payment rate stated in subparagraph (a)(1) above.

(d) Title.

(1) Title to the property described in this paragraph (d) shall vest in the Government. Vestiture shall be immediately upon the date of this contract, for property acquired or produced before that date. Otherwise, vestiture shall occur when the property is or should have been allocable or properly chargeable to this contract.

(2) "Property," as used in this clause, includes all of the below-described items acquired or produced by the Contractor that are or should be allocable or properly chargeable to this contract under sound and generally accepted accounting principles and practices.

(i) Parts, materials, inventories, and work in process;

(ii) Special tooling and special test equipment to which the Government is to acquire title under any other clause of this contract;

(iii) Nondurable (i.e., noncapital) tools, jigs, dies, fixtures, molds, patterns, taps, gauges, test equipment, and other similar manufacturing aids, title to which would not be obtained as special tooling under subparagraph (ii) above; and

(iv) Drawings and technical data, to the extent the Contractor or subcontractors are required to deliver them to the Government by other clauses of this contract.

(3) Although title to property is in the Government under this clause, other applicable clauses of this contract; e.g., the termination or special tooling clauses, shall determine the handling and disposition of the property.

(4) The Contractor may sell any scrap resulting from production under this contract without requesting the Contracting Officer's approval, but the proceeds shall be credited against the costs of performance.

(5) To acquire for its own use or dispose of property to which title is vested in the Government under this clause, the Contractor must obtain the Contracting Officer's advance approval of the action and the terms. The Contractor shall

(i) exclude the allocable costs of the property from the costs of contract performance, and (ii) repay to the Government any amount of unliquidated progress payments allocable to the property. Repayment may be by cash or

credit memorandum.

(6) When the Contractor completes all of the obligations under this contract, including liquidation of all progress payments, title shall vest in the Contractor for all property (or the proceeds thereof) not--

(i) Delivered to, and accepted by, the Government under this contract; or

(ii) Incorporated in supplies delivered to, and accepted by, the Government under this contract and to which title is vested in the Government under this clause.

(7) The terms of this contract concerning liability for Government-furnished property shall not apply to property to which the Government acquired title solely under this clause.

(e) Risk of loss. Before delivery to and acceptance by the Government, the Contractor shall bear the risk of loss for property, the title to which vests in the Government under this clause, except to the extent the Government expressly assumes the risk. The Contractor shall repay the Government an amount equal to the unliquidated progress payments that are based on costs allocable to property that is damaged, lost, stolen, or destroyed.

(f) Control of costs and property. The Contractor shall maintain an accounting system and controls adequate for the proper administration of this clause.

(g) Reports and access to records. The Contractor shall promptly furnish reports, certificates, financial statements, and other pertinent information reasonably requested by the Contracting Officer for the administration of this clause. Also, the Contractor shall give the Government reasonable opportunity to examine and verify the Contractor's books, records, and accounts.

(h) Special terms regarding default. If this contract is terminated under the Default clause, (i) the Contractor shall, on demand, repay to the Government the amount of unliquidated progress payments and (ii) title shall vest in the Contractor, on full liquidation of progress payments, for all property for which the Government elects not to require delivery under the Default clause. The Government shall be liable for no payment except as provided by the Default clause.

(i) Reservations of rights. (1) No payment or vesting of title under this clause shall (i) excuse the Contractor from performance of obligations under this contract or (ii) constitute a waiver of any of the rights or remedies of the parties under the contract.

(2) The Government's rights and remedies under this clause

(i) Shall not be exclusive but rather shall be in addition to any other rights and remedies provided by law or this contract and

(ii) Shall not be affected by delayed, partial, or omitted exercise of any right, remedy, power, or privilege, nor shall such exercise or any single exercise preclude or impair any further exercise under this clause or the exercise of any other right, power, or privilege of the Government.

(j) Financing payments to subcontractors. The financing payments to subcontractors mentioned in paragraphs (a)(1) and (a)(2) of this clause shall be all financing payments to subcontractors or divisions, if the following conditions are met:

(1) The amounts included are limited to--

(i) The unliquidated remainder of financing payments made; plus

(ii) Any unpaid subcontractor requests for financing payments.

(2) The subcontract or interdivisional order is expected to involve a minimum of approximately 6 months between the beginning of work and the first delivery; or, if the subcontractor is a small business concern, 4 months.

(3) If the financing payments are in the form of progress payments, the terms of the subcontract or interdivisional order concerning progress payments--

(i) Are substantially similar to the terms of this clause for any subcontractor that is a large business concern, or this clause with its Alternate I for any subcontractor that is a small business concern;

(ii) Are at least as favorable to the Government as the terms of this clause;

(iii) Are not more favorable to the subcontractor or division than the terms of this clause are to the Contractor;

(iv) Are in conformance with the requirements of FAR 32.504(e); and

(v) Subordinate all subcontractor rights concerning property to which the Government has title under the subcontract to the Government's right to require delivery of the property to the Government if--

(A) The Contractor defaults; or

(B) The subcontractor becomes bankrupt or insolvent.

(4) If the financing payments are in the form of performance-based payments, the terms of the subcontract or interdivisional order concerning payments--

(i) Are substantially similar to the Performance-Based Payments clause at FAR 52.232-32 and meet the criteria for, and definition of, performance-based payments in FAR Part 32;

(ii) Are in conformance with the requirements of FAR 32.504(f); and

(iii) Subordinate all subcontractor rights concerning property to which the Government has title under the subcontract to the Government's right to require delivery of the property to the Government if--

(A) The Contractor defaults; or

(B) The subcontractor becomes bankrupt or insolvent.

(5) If the financing payments are in the form of commercial item financing payments, the terms of the subcontract or interdivisional order concerning payments--

(i) Are constructed in accordance with FAR 32.206(c) and included in a subcontract for a commercial item purchase that meets the definition and standards for acquisition of commercial items in FAR Parts 2 and 12;

(ii) Are in conformance with the requirements of FAR 32.504(g); and

(iii) Subordinate all subcontractor rights concerning property to which the Government has title under the subcontract to the Government's right to require delivery of the property to the Government if--

(A) The Contractor defaults; or

(B) The subcontractor becomes bankrupt or insolvent.



(6) If financing is in the form of progress payments, the progress payment rate in the subcontract is the customary rate used by the contracting agency, depending on whether the subcontractor is or is not a small business concern.

(7) Concerning any proceeds received by the Government for property to which title has vested in the Government under the subcontract terms, the parties agree that the proceeds shall be applied to reducing any unliquidated financing payments by the Government to the Contractor under this contract.

(8) If no unliquidated financing payments to the Contractor remain, but there are unliquidated financing payments that the Contractor has made to any subcontractor, the Contractor shall be subrogated to all the rights the Government obtained through the terms required by this clause to be in any subcontract, as if all such rights had been assigned and transferred to the Contractor.

(9) To facilitate small business participation in subcontracting under this contract, the Contractor shall provide financing payments to small business concerns, in conformity with the standards for customary contract financing payments stated in Subpart 32.113. The Contractor shall not consider the need for such financing payments as a handicap or adverse factor in the award of subcontracts.

(k) Limitations on undefinitized contract actions. Notwithstanding any other progress payment provisions in this contract, progress payments may not exceed 80 percent of costs incurred on work accomplished under undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes. This limitation shall apply to the costs incurred, as computed in accordance with paragraph (a) of this clause, and shall remain in effect until the contract action is definitized. Costs incurred which are subject to this limitation shall be segregated on Contractor progress payment requests and invoices from those costs eligible for higher progress payment rates. For purposes of progress payment liquidation, as described in paragraph (b) of this clause, progress payments for undefinitized contract actions shall be liquidated at 80 percent of the amount invoiced for work performed under the undefinitized contract action as long as the contract action remains undefinitized. The amount of unliquidated progress payments for undefinitized contract actions shall not exceed 80 percent of the maximum liability of the Government under the undefinitized contract action or such lower limit specified elsewhere in the contract. Separate limits may be specified for separate actions.

(l) Due date. The designated payment office will make progress payments on the 30<sup>th</sup> day after the designated billing office receives a proper progress payment request. In the event that the Government requires an audit or other review of a specific progress payment request to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the specified due date. Progress payments are considered contract financing and are not subject to the interest penalty provisions of the Prompt Payment Act.

(End of clause)

#### 52.232-17 INTEREST (JUNE 1996)

(a) Except as otherwise provided in this contract under a Price Reduction for Defective Cost or Pricing Data clause or a Cost Accounting Standards clause, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until

the amount is paid, reproduce, prepare derivative works, distribute copies to the public, and (b) Amounts shall be due at the earliest of the following dates:

- (1) The date fixed under this contract.
  - (2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.
  - (3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.
  - (4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.
- (c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

(End of clause)

#### 52.232-18 AVAILABILITY OF FUNDS (APR 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

(End of clause)

#### 52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986)

(a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence.

(b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.

(c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

(End of clause)

## 52.232-25 PROMPT PAYMENT (FEB 2002)

Notwithstanding any other payment clause in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer (EFT). Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(4) of this clause concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Due date. (i) Except as indicated in paragraphs (a)(2) and (c) of this clause, the due date for making invoice payments by the designated payment office is the later of the following two events:

(A) The 30th day after the designated billing office receives a proper invoice from the Contractor (except as provided in paragraph (a)(1)(ii) of this clause).

(B) The 30th day after Government acceptance of supplies delivered or services performed. For a final invoice, when the payment amount is subject to contract settlement actions, acceptance is deemed to occur on the effective date of the contract settlement.

(ii) If the designated billing office fails to annotate the invoice with the actual date of receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Certain food products and other payments. (i) Due dates on Contractor invoices for meat, meat food products, or fish; perishable agricultural commodities; and dairy products, edible fats or oils, and food products prepared from edible fats or oils are--

(A) For meat or meat food products, as defined in section 2(a)(3) of the Packers and Stockyard Act of 1921 (7 U.S.C. 182(3)), and as further defined in Pub. L. 98-181, including any edible fresh or frozen poultry meat, any perishable poultry meat food product, fresh eggs, and any perishable egg product, as close as possible to, but not later than, the 7th day after product delivery.

(B) For fresh or frozen fish, as defined in section 204(3) of the Fish and Seafood Promotion Act of 1986 (16 U.S.C. 4003(3)), as close as possible to, but not later than, the 7th day after product delivery.

(C) For perishable agricultural commodities, as defined in section 1(4) of the Perishable Agricultural Commodities Act of 1930 (7 U.S.C. 499a(4)), as close as possible to, but not later than, the 10th day after product delivery, unless another date is specified in the contract.

(D) For dairy products, as defined in section 111(e) of the Dairy Production Stabilization Act of 1983 (7 U.S.C. 4502(e)), edible fats or oils, and food products prepared from edible fats or oils, as close as possible to, but not later than, the 10th day after the date on which a proper invoice has been received. Liquid milk, cheese, certain processed cheese products, butter, yogurt, ice cream, mayonnaise, salad dressings, and other similar products, fall within this classification. Nothing in the Act limits this classification to refrigerated products. When questions arise regarding the proper classification of a specific product, prevailing industry practices will be followed in specifying a contract payment due date. The burden of proof that a classification of a specific product is, in fact, prevailing industry practice is upon the Contractor making the representation.

(ii) If the contract does not require submission of an invoice for payment (e.g., periodic lease payments), the due date will be as specified in the contract.

(3) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(3)(i) through (a)(3)(x) of this clause. If the invoice does not comply with these requirements, the designated billing office will return it within 7 days after receipt (3 days for meat, meat food products, or fish; 5 days for perishable agricultural commodities, dairy products, edible fats or oils, and food products prepared from edible fats or oils), with the reasons why it is not a proper invoice. The Government will take into account untimely notification when computing any interest penalty owed the Contractor.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of the mailing or transmission.)

(iii) Contract number or other authorization for supplies delivered or services performed (including order number and contract line item number).

(iv) Description, quantity, unit of measure, unit price, and extended price of supplies delivered or services performed.

(v) Shipping and payment terms (e.g., shipment number and date of shipment, discount for prompt payment terms). Bill of lading number and weight of shipment will be shown for shipments on Government bills of lading.

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(ix) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(x) Any other information or documentation required by the contract (e.g., evidence of shipment).

(4) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(4)(i) through (a)(4)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment, and there was no disagreement over quantity, quality, or Contractor compliance with any contract term or condition.

(iii) In the case of a final invoice for any balance of funds due the Contractor for supplies delivered or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(5) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor, Government acceptance is deemed to occur constructively on the 7th day (unless otherwise specified in this contract) after the Contractor delivers the supplies or performs the services in accordance with the terms and conditions of the contract, unless there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. If actual acceptance occurs within the constructive acceptance period, the Government will base the determination of an interest penalty on the actual date of acceptance. The constructive acceptance requirement does not, however, compel Government officials to accept supplies or services, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(6) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(7) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of \$1 or more;

(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(7)(ii) of this clause, postmarked not later than 40 days after the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest is due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

- (1) The designated payment office that receives the demand will annotate it with the date of receipt, provided the demand is received on or before the 40th day after payment was made; or
  - (2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.
  - (iii) The additional penalty does not apply to payments regulated by other Government regulations (e.g., payments under utility contracts subject to tariffs and regulation).
  - (b) Contract financing payment. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.
  - (c) Fast payment procedure due dates. If this contract contains the clause at 52.213-1, Fast Payment Procedure, payments will be made within 15 days after the date of receipt of the invoice.
  - (d) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.
- (End of clause)

#### 52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (FEB 2002)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments under the terms and conditions specified in this clause. The Government considers payment as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in sections 2.101, 32.001, and 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see paragraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

(a) Invoice payments--(1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

(i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project.

(A) The due date for making such payments is 14 days after the designated billing office receives a proper payment request. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date is the 14th day after the date of the Contractor's payment request, provided the designated billing office receives a proper payment request and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, is as specified in the contract or, if not specified, 30 days after approval by the Contracting Officer for release to the Contractor.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the

Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract).

(A) The due date for making such payments is the later of the following two events:

(1) The 30th day after the designated billing office receives a proper invoice from the Contractor.

(2) The 30th day after Government acceptance of the work or services completed by the Contractor. For a final invoice when the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance is deemed to occur on the effective date of the contract settlement.

(B) If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date is the 30th day after the date of the Contractor's invoice, provided the designated billing office receives a proper invoice and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(2)(i) through (a)(2)(xi) of this clause. If the invoice does not comply with these requirements, the designated billing office must return it within 7 days after receipt, with the reasons why it is not a proper invoice. When computing any interest penalty owed the Contractor, the Government will take into account if the Government notifies the Contractor of an improper invoice in an untimely manner.

(i) Name and address of the Contractor.

(ii) Invoice date and invoice number. (The Contractor should date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., discount for prompt payment terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to notify in the event of a defective invoice.

(viii) For payments described in paragraph (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision (e.g., 52.232-38, Submission of Electronic Funds Transfer Information with Offer), contract clause (e.g., 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration, or 52.232-34, Payment by Electronic Funds Transfer--Other Than Central Contractor Registration), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(xi) Any other information or documentation required by the contract.

(3) Interest penalty. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if payment is not made by the due date and the conditions listed in paragraphs (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday, the designated payment office may make payment on the following working day without incurring a late payment interest penalty.

(i) The designated billing office received a proper invoice.

(ii) The Government processed a receiving report or other Government documentation authorizing payment and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The Government will compute the interest penalty in accordance with the Office of Management and Budget prompt payment regulations at 5 CFR part 1315.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in paragraph (a)(1)(ii) of this clause, Government acceptance or approval is deemed to occur constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. If actual acceptance or approval occurs within the constructive acceptance or approval period, the Government will base the determination of an interest penalty on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The prompt payment regulations at 5 CFR 1315.10(c) do not require the Government to pay interest penalties if payment delays are due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. The Government and the Contractor shall resolve claims involving disputes, and any interest that may be payable in accordance with the clause at FAR 52.233-1, Disputes.

(5) Discounts for prompt payment. The designated payment office will pay an interest penalty automatically, without request from the Contractor, if the Government takes a discount for prompt payment improperly. The Government will calculate the interest penalty in accordance with the prompt payment regulations at 5 CFR part 1315.

(6) Additional interest penalty. (i) The designated payment office will pay a penalty amount, calculated in accordance with the prompt payment regulations at 5 CFR part 1315 in addition to the interest penalty amount only if--

(A) The Government owes an interest penalty of \$1 or more;



(B) The designated payment office does not pay the interest penalty within 10 days after the date the invoice amount is paid; and

(C) The Contractor makes a written demand to the designated payment office for additional penalty payment, in accordance with paragraph (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) The Contractor shall support written demands for additional penalty payments with the following data. The Government will not request any additional data. The Contractor shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) If there is no postmark or the postmark is illegible--

(1) The designated payment office that receives the demand will annotate it with the date of receipt provided the demand is received on or before the 40th day after payment was made; or

(2) If the designated payment office fails to make the required annotation, the Government will determine the demand's validity based on the date the Contractor has placed on the demand, provided such date is no later than the 40th day after payment was made.

(b) Contract financing payments. If this contract provides for contract financing, the Government will make contract financing payments in accordance with the applicable contract financing clause.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to use:

(i) Include a payment clause and an interest penalty clause conforming to the standards set forth in paragraphs (c)(1) and (c)(2) of this clause in each of its subcontracts; and

(ii) Require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) The Contractor furnishes to the Contracting Officer a copy of any notice issued by a Contractor pursuant to paragraph (d)(3)(i) of this clause.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to paragraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under paragraph (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under paragraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under paragraph (e)(5)(i) of this clause.

(f) Third-party deficiency reports--(1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under paragraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under paragraph (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under paragraph (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. The Contractor shall issue a written notice of any withholding to a subcontractor (with a copy furnished to the Contracting Officer), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the Government is a party. The Government may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the Government for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

(l) Overpayments. If the Contractor becomes aware of a duplicate payment or that the Government has otherwise overpaid on an invoice payment, the Contractor shall immediately notify the Contracting Officer and request instructions for disposition of the overpayment.

(End of clause)

#### 52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for

the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.

(g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(i) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.

(j) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

## 52.233-1 DISPUTES. (JUL 2002)

- (a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).
- (b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.
- (c) Claim, as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding \$100,000 is not a claim under the Act until certified. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.
- (2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -
- (A) Exceeding \$100,000; or
- (B) Regardless of the amount claimed, when using -
- (1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or
- (2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).
- (ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.
- (iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor.
- (3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.
- (e) For Contractor claims of \$100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over \$100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.
- (f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.
- (g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative dispute resolution (ADR). If the

Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

#### 52.233-3 PROTEST AFTER AWARD (AUG. 1996)

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

(e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.

(f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a

protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

(End of clause)

#### 52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

(1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or

(2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

(End of clause)

#### 52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;



(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

(End of clause)

#### 52.236-4 PHYSICAL DATA (APR 1984)

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by . . . . . [insert a description of investigational methods used, such as surveys, auger borings, core borings, test pits, probings, test tunnels].

(b) Weather conditions . . . . . (insert a summary of weather records and warnings).

(c) Transportation facilities . . . . . (insert a summary of transportation facilities providing access from the site, including information about their availability and limitations).

(d) . . . . . (insert other pertinent information).

(End of clause)

#### 52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the

performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(End of clause)

#### 52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

(End of clause)

#### 52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(End of clause)

#### 52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

(End of clause)

#### 52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

(End of clause)

#### 52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

(End of clause)

#### 52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

(End of clause)

#### 52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

(End of clause)

#### 52.236-13 ACCIDENT PREVENTION (NOV 1991) – ALTERNATE I (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(v) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(i) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the

notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(f) Before commencing the work, the Contractor shall-

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

(End of clause)

#### 52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES (APR 1984)

(a) The Government shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the Government or, where the utility is produced by the Government, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

(b) The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

(End of clause)

#### 52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to

the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

(End of clause)

#### 52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

(End of clause)

#### 52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier

subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

(End of clause)

#### 52.237-2 PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION (APR 1984)

The Contractor shall use reasonable care to avoid damaging existing buildings, equipment, and vegetation on the Government installation. If the Contractor's failure to use reasonable care causes damage to any of this property, the Contractor shall replace or repair the damage at no expense to the Government as the Contracting Officer directs. If the Contractor fails or refuses to make such repair or replacement, the Contractor shall be liable for the cost, which may be deducted from the contract price.

(End of clause)

#### 52.237-3 CONTINUITY OF SERVICES (JAN 1991)

(a) The Contractor recognizes that the services under this contract are vital to the Government and must be continued without interruption and that, upon contract expiration, a successor, either the Government or another contractor, may continue them. The Contractor agrees to (1) furnish phase-in training and (2) exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

(b) The Contractor shall, upon the Contracting Officer's written notice, (1) furnish phase-in, phase-out services for up to 90 days after this contract expires and (2) negotiate in good faith a plan with a successor to determine the nature and extent of phase-in, phase-out services required. The plan shall specify a training program and a date for

transferring responsibilities for each division of work described in the plan, and shall be subject to the Contracting Officer's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this contract are maintained at the required level of proficiency.

(c) The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this contract. The Contractor also shall disclose necessary personnel records and allow the successor to conduct onsite interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

(d) The Contractor shall be reimbursed for all reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations) and a fee (profit) not to exceed a pro rata portion of the fee (profit) under this contract.

(End of clause)

#### 52.242-13 BANKRUPTCY (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

#### 52.243-1 CHANGES--FIXED-PRICE (APR 1984)

(a) The Contracting Officer may at any time, by written order, and without notice to the sureties, if any, make changes within the general scope of this contract in any one or more of the following:

(1) Drawings, designs, or specifications when the supplies to be furnished are to be specially manufactured for the Government in accordance with the drawings, designs, or specifications.

(2) Method of shipment or packing.

(3) Place of delivery.

(b) If any such change causes an increase or decrease in the cost of, or the time required for, performance of any part of the work under this contract, whether or not changed by the order, the Contracting Officer shall make an equitable adjustment in the contract price, the delivery schedule, or both, and shall modify the contract.

(c) The Contractor must assert its right to an adjustment under this clause within 30 days from the date of receipt of the written order. However, if the Contracting Officer decides that the facts justify it, the Contracting Officer may receive and act upon a proposal submitted before final payment of the contract.

(d) If the Contractor's proposal includes the cost of property made obsolete or excess by the change, the Contracting



Officer shall have the right to prescribe the manner of the disposition of the property.

(e) Failure to agree to any adjustment shall be a dispute under the Disputes clause. However, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

(End of clause)

#### 52.243-4 CHANGES (AUG 1987)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

- (1) the date, circumstances, and source of the order and
- (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

## 52.244-5 COMPETITION IN SUBCONTRACTING (DEC 1996)

(a) The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the contract.

(b) If the Contractor is an approved mentor under the Department of Defense Pilot Mentor-Protege Program (Pub. L. 101-510, section 831 as amended), the Contractor may award subcontracts under this contract on a noncompetitive basis to its proteges.

(End of clause)

## 52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (MAY 2002)

(a) Definitions.

"Commercial item", has the meaning contained in the clause at 52.202-1, Definitions.

"Subcontract", includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) (1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.219-8, Utilization of Small Business Concerns (OCT 2000) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$500,000 (\$1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(ii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212(a)).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793).

(v) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (JUN 2000) (46 U.S.C. Appx 1241) (flowdown not required for subcontracts awarded beginning May 1, 1996).

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

(End of clause)

## 52.245-1 PROPERTY RECORDS (APR 1984)

The Government shall maintain the Government's official property records in connection with Government property under this contract. The Government Property clause is hereby modified by deleting the requirement for the Contractor to maintain such records.

(End of clause)

## 52.245-2 GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (DEC 1989)

(a) Government-furnished property. (1) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the Government-furnished property described in the Schedule or specifications together with any related data and information that the Contractor may request and is reasonably required for the intended use of the property (hereinafter referred to as "Government-furnished property").

(2) The delivery or performance dates for this contract are based upon the expectation that Government-furnished property suitable for use (except for property furnished "as is") will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet the contract's delivery or performance dates.

(3) If Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt of it, notify the Contracting Officer, detailing the facts, and, as directed by the Contracting Officer and at Government expense, either repair, modify, return, or otherwise dispose of the property. After completing the directed action and upon written request of the Contractor, the Contracting Officer shall make an equitable adjustment as provided in paragraph (h) of this clause.

(4) If Government-furnished property is not delivered to the Contractor by the required time, the Contracting Officer shall, upon the Contractor's timely written request, make a determination of the delay, if any, caused the Contractor and shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(b) Changes in Government-furnished property. (1) The Contracting Officer may, by written notice, (i) decrease the Government-furnished property provided or to be provided under this contract, or (ii) substitute other Government-furnished property for the property to be provided by the Government, or to be acquired by the Contractor for the Government, under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct regarding the removal, shipment, or disposal of the property covered by such notice.

(2) Upon the Contractor's written request, the Contracting Officer shall make an equitable adjustment to the contract in accordance with paragraph (h) of this clause, if the Government has agreed in the Schedule to make the property available for performing this contract and there is any--

(i) Decrease or substitution in this property pursuant to subparagraph (b)(1) of this clause; or

(ii) Withdrawal of authority to use this property, if provided under any other contract or lease.

(c) Title in Government property. (1) The Government shall retain title to all Government-furnished property.

(2) All Government-furnished property and all property acquired by the Contractor, title to which vests in the Government under this paragraph (collectively referred to as "Government property"), are subject to the provisions of this clause. However, special tooling accountable to this contract is subject to the provisions of the Special

Tooling clause and is not subject to the provisions of this clause. Title to Government property shall not be affected by its incorporation into or attachment to any property not owned by the Government, nor shall Government property become a fixture or lose its identity as personal property by being attached to any real property.

(3) Title to each item of facilities and special test equipment acquired by the Contractor for the Government under this contract shall pass to and vest in the Government when its use in performing this contract commences or when the Government has paid for it, whichever is earlier, whether or not title previously vested in the Government.

(4) If this contract contains a provision directing the Contractor to purchase material for which the Government will reimburse the Contractor as a direct item of cost under this contract--

(i) Title to material purchased from a vendor shall pass to and vest in the Government upon the vendor's delivery of such material; and

(ii) Title to all other material shall pass to and vest in the Government upon--

(A) Issuance of the material for use in contract performance;

(B) Commencement of processing of the material or its use in contract performance; or

(C) Reimbursement of the cost of the material by the Government, whichever occurs first.

(d) Use of Government property. The Government property shall be used only for performing this contract, unless otherwise provided in this contract or approved by the Contracting Officer.

(e) Property administration. (1) The Contractor shall be responsible and accountable for all Government property provided under this contract and shall comply with Federal Acquisition Regulation (FAR) Subpart 45.5, as in effect on the date of this contract.

(2) The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound industrial practice and the applicable provisions of Subpart 45.5 of the FAR.

(3) If damage occurs to Government property, the risk of which has been assumed by the Government under this contract, the Government shall replace the items or the Contractor shall make such repairs as the Government directs. However, if the Contractor cannot effect such repairs within the time required, the Contractor shall dispose of the property as directed by the Contracting Officer. When any property for which the Government is responsible is replaced or repaired, the Contracting Officer shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(4) The Contractor represents that the contract price does not include any amount for repairs or replacement for which the Government is responsible. Repair or replacement of property for which the Contractor is responsible shall be accomplished by the Contractor at its own expense.

(f) Access. The Government and all its designees shall have access at all reasonable times to the premises in which any Government property is located for the purpose of inspecting the Government property.

(g) Risk of loss. Unless otherwise provided in this contract, the Contractor assumes the risk of, and shall be responsible for, any loss or destruction of, or damage to, Government property upon its delivery to the Contractor or upon passage of title to the Government under paragraph (c) of this clause. However, the Contractor is not responsible for reasonable wear and tear to Government property or for Government property properly consumed in performing this contract.

(h) Equitable adjustment. When this clause specifies an equitable adjustment, it shall be made to any affected contract provision in accordance with the procedures of the Changes clause. When appropriate, the Contracting Officer may initiate an equitable adjustment in favor of the Government. The right to an equitable adjustment shall be the Contractor's exclusive remedy. The Government shall not be liable to suit for breach of contract for--

- (1) Any delay in delivery of Government-furnished property;
- (2) Delivery of Government-furnished property in a condition not suitable for its intended use;
- (3) A decrease in or substitution of Government-furnished property; or
- (4) Failure to repair or replace Government property for which the Government is responsible.

(i) Final accounting and disposition of Government property. Upon completing this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit, in a form acceptable to the Contracting Officer, inventory schedules covering all items of Government property (including any resulting scrap) not consumed in performing this contract or delivered to the Government. The Contractor shall prepare for shipment, deliver f.o.b. origin, or dispose of the Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the contract price or shall be paid to the Government as the Contracting Officer directs.

(j) Abandonment and restoration of Contractor's premises. Unless otherwise provided herein, the Government--

(1) May abandon any Government property in place, at which time all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to restore or rehabilitate the Contractor's premises under any circumstances (e.g., abandonment, disposition upon completion of need, or upon contract completion). However, if the Government-furnished property (listed in the Schedule or specifications) is withdrawn or is unsuitable for the intended use, or if other Government property is substituted, then the equitable adjustment under paragraph (h) of this clause may properly include restoration or rehabilitation costs.

(k) Communications. All communications under this clause shall be in writing.

(l) Overseas contracts. If this contract is to be performed outside of the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

#### 52.246-21 WARRANTY OF CONSTRUCTION (MAR 1994)

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of clause)

#### 52.246-25 LIMITATION OF LIABILITY--SERVICES (FEB 1997)

(a) Except as provided in paragraphs (b) and (c) below, and except to the extent that the Contractor is expressly responsible under this contract for deficiencies in the services required to be performed under it (including any materials furnished in conjunction with those services), the Contractor shall not be liable for loss of or damage to property of the Government that (1) occurs after Government acceptance of services performed under this contract, and (2) results from any defects or deficiencies in the services performed or materials furnished.

(b) The limitation of liability under paragraph (a) above shall not apply when a defect or deficiency in, or the

Government's acceptance of, services performed or materials furnished results from willful misconduct or lack of good faith on the part of any of the Contractor's managerial personnel. The term "Contractor's managerial personnel," as used in this clause, means the Contractor's directors, officers, and any of the Contractor's managers, superintendents, or equivalent representatives who have supervision or direction of--

- (1) All or substantially all of the Contractor's business;
  - (2) All or substantially all of the Contractor's operations at any one plant, laboratory, or separate location at which the contract is being performed; or
  - (3) A separate and complete major industrial operation connected with the performance of this contract.
- (c) If the Contractor carries insurance, or has established a reserve for self-insurance, covering liability for loss or damage suffered by the Government through the Contractor's performance of services or furnishing of materials under this contract, the Contractor shall be liable to the Government, to the extent of such insurance or reserve, for loss of or damage to property of the Government occurring after Government acceptance of, and resulting from any defects and deficiencies in, services performed or materials furnished under this contract.

(End of clause)

#### 52.248-1 VALUE ENGINEERING (FEB 2000)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any net acquisition savings realized from accepted VECP's, in accordance with the incentive sharing rates in paragraph (f) below.

(b) Definitions. "Acquisition savings," as used in this clause, means savings resulting from the application of a VECP to contracts awarded by the same contracting office or its successor for essentially the same unit. Acquisition savings include--

- (1) Instant contract savings, which are the net cost reductions on this, the instant contract, and which are equal to the instant unit cost reduction multiplied by the number of instant contract units affected by the VECP, less the Contractor's allowable development and implementation costs;
- (2) Concurrent contract savings, which are net reductions in the prices of other contracts that are definitized and ongoing at the time the VECP is accepted; and
- (3) Future contract savings, which are the product of the future unit cost reduction multiplied by the number of future contract units in the sharing base. On an instant contract, future contract savings include savings on increases in quantities after VECP acceptance that are due to contract modifications, exercise of options, additional orders, and funding of subsequent year requirements on a multiyear contract.

"Collateral costs," as used in this clause, means agency cost of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contracting office" includes any contracting office that the acquisition is transferred to, such as another branch of the agency or another agency's office that is performing a joint acquisition action.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Future unit cost reduction," as used in this clause, means the instant unit cost reduction adjusted as the Contracting Officer considers necessary for projected learning or changes in quantity during the sharing period. It is calculated at the time the VECP is accepted and applies either (1) throughout the sharing period, unless the Contracting Officer decides that recalculation is necessary because conditions are significantly different from those previously anticipated or (2) to the calculation of a lump-sum payment, which cannot later be revised.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistics support. The term does not include the normal administrative costs of processing the VECP or any increase in this contract's cost or price resulting from negative instant contract savings.

"Instant contract," as used in this clause, means this contract, under which the VECP is submitted. It does not include increases in quantities after acceptance of the VECP that are due to contract modifications, exercise of options, or additional orders. If this is a multiyear contract, the term does not include quantities funded after VECP acceptance. If this contract is a fixed-price contract with prospective price redetermination, the term refers to the period for which firm prices have been established.

"Instant unit cost reduction" means the amount of the decrease in unit cost of performance (without deducting any Contractor's development or implementation costs) resulting from using the VECP on this, the instant contract. If this is a service contract, the instant unit cost reduction is normally equal to the number of hours per line-item task saved by using the VECP on this contract, multiplied by the appropriate contract labor rate.

"Negative instant contract savings" means the increase in the cost or price of this contract when the acceptance of a VECP results in an excess of the Contractor's allowable development and implementation costs over the product of the instant unit cost reduction multiplied by the number of instant contract units affected.

"Net acquisition savings" means total acquisition savings, including instant, concurrent, and future contract savings, less Government costs.

"Sharing base," as used in this clause, means the number of affected end items on contracts of the contracting office accepting the VECP.

Sharing period, as used in this clause, means the period beginning with acceptance of the first unit incorporating the VECP and ending at a calendar date or event determined by the contracting officer for each VECP.

"Unit," as used in this clause, means the item or task to which the Contracting Officer and the Contractor agree the VECP applies.

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only;



(ii) In research and development (R&D) end items or R&D test quantities that is due solely to results of previous testing under this contract; or

(iii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (8) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) Identification of the unit to which the VECP applies.

(4) A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

(5) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(6) A prediction of any effects the proposed change would have on collateral costs to the agency.

(7) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(8) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the VECP simultaneously to the Contracting Officer and to the Administrative Contracting Officer.

(e) Government action. (1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

(2) If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

(3) Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause and made either before or within a reasonable time after contract performance is completed. Until such a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with

the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing rates. If a VECP is accepted, the Contractor shall share in net acquisition savings according to the percentages shown in the table below. The percentage paid the Contractor depends upon (1) this contract's type (fixed-price, incentive, or cost-reimbursement), (2) the sharing arrangement specified in paragraph (a) above (incentive, program requirement, or a combination as delineated in the Schedule), and (3) the source of the savings (the instant contract, or concurrent and future contracts), as follows:

**CONTRACTOR'S SHARE OF NET ACQUISITION SAVINGS**

(Figures in percent)

Contract Type	Incentive (Voluntary)		Program Requirement (Mandatory)	
	Instant Contract Rate	Concurrent and Future Contract Rate	Instant Contract Rate	Concurrent and Future Contract Rate
Fixed-price (includes fixed-price-award-fee; excludes other fixed-price incentive contracts)	(1) 50	(1) 50	(1) 25	25
Incentive (fixed-price or cost) (other than award fee)	(2)	(1) 50	(1) 50	25
Cost-reimbursement (includes cost-plus-award-fee; excludes other cost-type incentive Contracts)	(3) 25	(3)	15	15

(1) The Contracting Officer may increase the Contractor's sharing rate to as high as 75 percent for each VECP.

(2) Same sharing arrangement as the contract's profit or fee adjustment formula.

(3) The Contracting Officer may increase the Contractor's sharing rate to as high as 50 percent for each VECP.

(g) Calculating net acquisition savings.

(1) Acquisition savings are realized when (i) the cost or price is reduced on the instant contract, (ii) reductions are negotiated in concurrent contracts, (iii) future contracts are awarded, or (iv) agreement is reached on a lump-sum payment for future contract savings (see subparagraph (i)(4) below). Net acquisition savings are first realized, and the Contractor shall be paid a share, when Government costs and any negative instant contract savings have been fully offset against acquisition savings.

(2) Except in incentive contracts, Government costs and any price or cost increases resulting from negative instant contract savings shall be offset against acquisition savings each time such savings are realized until they are fully offset. Then, the Contractor's share is calculated by multiplying net acquisition savings by the appropriate

Contractor's percentage sharing rate (see paragraph (f) above). Additional Contractor shares of net acquisition savings shall be paid to the Contractor at the time realized.

(3) If this is an incentive contract, recovery of Government costs on the instant contract shall be deferred and offset against concurrent and future contract savings. The Contractor shall share through the contract incentive structure in savings on the instant contract items affected. Any negative instant contract savings shall be added to the target cost or to the target price and ceiling price, and the amount shall be offset against concurrent and future contract savings.

(4) If the Government does not receive and accept all items on which it paid the Contractor's share, the Contractor shall reimburse the Government for the proportionate share of these payments.

(h) Contract adjustment. The modification accepting the VECP (or a subsequent modification issued as soon as possible after any negotiations are completed) shall--

(1) Reduce the contract price or estimated cost by the amount of instant contract savings, unless this is an incentive contract;

(2) When the amount of instant contract savings is negative, increase the contract price, target price and ceiling price, target cost, or estimated cost by that amount;

(3) Specify the Contractor's dollar share per unit on future contracts, or provide the lump-sum payment;

(4) Specify the amount of any Government costs or negative instant contract savings to be offset in determining net acquisition savings realized from concurrent or future contract savings; and

(5) Provide the Contractor's share of any net acquisition savings under the instant contract in accordance with the following:

(i) Fixed-price contracts--add to contract price.

(ii) Cost-reimbursement contracts--add to contract fee.

(i) Concurrent and future contract savings.

(1) Payments of the Contractor's share of concurrent and future contract savings shall be made by a modification to the instant contract in accordance with subparagraph (h)(5) above. For incentive contracts, shares shall be added as a separate firm-fixed-price line item on the instant contract. The Contractor shall maintain records adequate to identify the first delivered unit for 3 years after final payment under this contract.

(2) The Contracting Officer shall calculate the Contractor's share of concurrent contract savings by (i) subtracting from the reduction in price negotiated on the concurrent contract any Government costs or negative instant contract savings not yet offset and (ii) multiplying the result by the Contractor's sharing rate.

(3) The Contracting Officer shall calculate the Contractor's share of future contract savings by (i) multiplying the future unit cost reduction by the number of future contract units scheduled for delivery during the sharing period, (ii) subtracting any Government costs or negative instant contract savings not yet offset, and (iii) multiplying the result by the Contractor's sharing rate.

(4) When the Government wishes and the Contractor agrees, the Contractor's share of future contract savings may be paid in a single lump sum rather than in a series of payments over time as future contracts are awarded. Under this alternate procedure, the future contract savings may be calculated when the VECP is accepted, on the basis of the Contracting Officer's forecast of the number of units that will be delivered during the sharing period. The Contractor's

share shall be included in a modification to this contract (see subparagraph (h)(3) above) and shall not be subject to subsequent adjustment.

(5) Alternate no-cost settlement method. When, in accordance with subsection 48.104-4 of the Federal Acquisition Regulation, the Government and the Contractor mutually agree to use the no-cost settlement method, the following applies:

(i) The Contractor will keep all the savings on the instant contract and on its concurrent contracts only.

(ii) The Government will keep all the savings resulting from concurrent contracts placed on other sources, savings from all future contracts, and all collateral savings.

(j) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount, as specified in paragraph (h)(5) of this clause, by a rate from 20 to 100 percent, as determined by the Contracting Officer, of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price, target price, target cost, or estimated cost, at the time the VECP is accepted, or \$100,000, whichever is greater. The Contracting Officer will be the sole determiner of the amount of collateral savings.

(k) Relationship to other incentives. Only those benefits of an accepted VECP not rewardable under performance, design-to-cost (production unit cost, operating and support costs, reliability and maintainability), or similar incentives shall be rewarded under this clause. However, the targets of such incentives affected by the VECP shall not be adjusted because of VECP acceptance. If this contract specifies targets but provides no incentive to surpass them, the value engineering sharing shall apply only to the amount of achievement better than target.

(l) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of \$100,000 or more and may include one in subcontracts of lesser value. In calculating any adjustment in this contract's price for instant contract savings (or negative instant contract savings), the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs, and any value engineering incentive payments to a subcontractor, clearly resulting from a VECP accepted by the Government under this contract. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that the payments shall not reduce the Government's share of concurrent or future contract savings or collateral savings.

(m) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering clause of contract . . . . ., shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP)" means a proposal that--

- (1) Requires a change to this, the instant contract, to implement; and
- (2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change--

- (i) In deliverable end item quantities only; or

- (ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

- (1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

- (2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

- (3) A separate, detailed cost estimate for

- (i) the affected portions of the existing contract requirement and

(ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) Government action.

(1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing.

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by

(i) 45 percent for fixed-price contracts or

(ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price or estimated cost, at the time the VECP is accepted, or \$100,000, whichever is greater. The Contracting Officer is the sole determiner of the amount of collateral savings.

(h) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of \$50,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(i) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering-- Construction clause of contract . . . . . , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations." If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

#### 52.249-1 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SHORT FORM) (APR 1984)

The Contracting Officer, by written notice, may terminate this contract, in whole or in part, when it is in the Government's interest. If this contract is terminated, the rights, duties, and obligations of the parties, including compensation to the Contractor, shall be in accordance with Part 49 of the Federal Acquisition Regulation in effect on the date of this contract.

(End of clause)

#### 52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996)

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer



determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid or remaining to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and the Contracting Officer fail to agree on the whole amount to be paid because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined by the Contracting Officer as follows, but without duplication of any amounts agreed on under paragraph (f) of this clause:

(1) The contract price for completed supplies or services accepted by the Government (or sold or acquired under subparagraph (b)(9) of this clause) not previously paid for, adjusted for any saving of freight and other charges.

(2) The total of--

(i) The costs incurred in the performance of the work terminated, including initial costs and preparatory expense allocable thereto, but excluding any costs attributable to supplies or services paid or to be paid under subparagraph (f)(1) of this clause;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(2)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(2)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(3) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

(End of clause)

#### 52.249-4 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (SERVICES) (SHORT FORM) (APR 1984)

The Contracting Officer, by written notice, may terminate this contract, in whole or in part, when it is in the Government's interest. If this contract is terminated, the Government shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

(End of clause)

#### 52.249-8 DEFAULT (FIXED-PRICE SUPPLY AND SERVICE) (APR 1984)

(a)(1) The Government may, subject to paragraphs (c) and (d) of this clause, by written notice of default to the Contractor, terminate this contract in whole or in part if the Contractor fails to--

- (i) Deliver the supplies or to perform the services within the time specified in this contract or any extension;
- (ii) Make progress, so as to endanger performance of this contract (but see subparagraph (a)(2) of this clause); or
- (iii) Perform any of the other provisions of this contract (but see subparagraph (a)(2) below).

(2) The Government's right to terminate this contract under subdivisions (a)(1)(ii) and (1)(iii) of this clause, may be exercised if the Contractor does not cure such failure within 10 days (or more if authorized in writing by the Contracting Officer) after receipt of the notice from the Contracting Officer specifying the failure.

(b) If the Government terminates this contract in whole or in part, it may acquire, under the terms and in the manner the Contracting Officer considers appropriate, supplies or services similar to those terminated, and the Contractor will be liable to the Government for any excess costs for those supplies or services. However, the Contractor shall continue the work not terminated.

(c) Except for defaults of subcontractors at any tier, the Contractor shall not be liable for any excess costs if the failure to perform the contract arises from causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (1) acts of God or of the public enemy, (2) acts of the Government in either its sovereign or contractual capacity, (3) fires, (4) floods, (5) epidemics, (6) quarantine restrictions, (7) strikes, (8) freight embargoes, and (9) unusually severe weather. In each instance the failure to perform must be beyond the control and without the fault or negligence of the Contractor.

(d) If the failure to perform is caused by the default of a subcontractor at any tier, and if the cause of the default is beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either, the Contractor shall not be liable for any excess costs for failure to perform, unless the subcontracted supplies or services were obtainable from other sources in sufficient time for the Contractor to meet the required delivery schedule.

(e) If this contract is terminated for default, the Government may require the Contractor to transfer title and deliver to the Government, as directed by the Contracting Officer, any (1) completed supplies, and (2) partially completed supplies and materials, parts, tools, dies, jigs, fixtures, plans, drawings, information, and contract rights (collectively referred to as "manufacturing materials" in this clause) that the Contractor has specifically produced or acquired for the terminated portion of this contract. Upon direction of the Contracting Officer, the Contractor shall also protect and preserve property in its possession in which the Government has an interest.

(f) The Government shall pay contract price for completed supplies delivered and accepted. The Contractor and Contracting Officer shall agree on the amount of payment for manufacturing materials delivered and accepted and for the protection and preservation of the property. Failure to agree will be a dispute under the Disputes clause. The Government may withhold from these amounts any sum the Contracting Officer determines to be necessary to protect the Government against loss because of outstanding liens or claims of former lien holders.

(g) If, after termination, it is determined that the Contractor was not in default, or that the default was excusable, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Government.

(h) The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

## 52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

(i) acts of God or of the public enemy,

(ii) acts of the Government in either its sovereign or contractual capacity,

(iii) acts of another Contractor in the performance of a contract with the Government,

(iv) fires,

(v) floods,

(vi) epidemics,

(vii) quarantine restrictions,

(viii) strikes,

(ix) freight embargoes,

(x) unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

#### 52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS

Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

- (vi) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.
- (vii) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.
- (3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.
- (4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).
- (5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.

(End of Clause)

#### 52.252-4 ALTERATIONS IN CONTRACT (APR 1984)

Portions of this contract are altered as follows:

(End of clause)

#### 52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

- (a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, provided there is no change to the name, content, or sequence of the data elements on the form, and provided the form carries the Standard or Optional Form number and edition date.
- (b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition date.
- (viii) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

(End of clause)

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES (MAR 1999)

(a) Definitions. As used in this clause—

(1) "Arising out of a contract with the DoD" means any act in connection with—

(i) Attempting to obtain;

(ii) Obtaining, or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) "Conviction of fraud or any other felony" means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) "Date of conviction" means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving--

(1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;

(2) On the board of directors of any DoD contractor or first-tier subcontractor;

(3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or

(4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than \$500,000 if convicted of knowingly—

- (1) Employing a person under a prohibition specified in paragraph (b) of this clause; or
- (2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(e) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as—

- (1) Suspension or debarment;
- (2) Cancellation of the contract at no cost to the Government; or
- (3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify—

- (1) The person involved;
- (2) The nature of the conviction and resultant sentence or punishment imposed;
- (3) The reasons for the requested waiver; and
- (4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

#### 252.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(ix) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

252.204-7000 DISCLOSURE OF INFORMATION (DEC 1991)

(a) The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless--

(1) The Contracting Officer has given prior written approval; or

(2) The information is otherwise in the public domain before the date of release.

(b) Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release.

(c) The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

(End of clause)

252.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the contractor.

(End of clause)

252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION (NOV 2001)

(a) Definitions.

As used in this clause--

(1) Central Contractor Registration (CCR) database means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) Registered in the CCR database means that all mandatory information, including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.



(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at <http://www.ccr.gov>.

(End of clause)

#### 252.205-7000 PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991)

(a) Definition.

"Cooperative agreement holder" means a State or local government; a private, nonprofit organization; a tribal organization (as defined in section 4(c) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-268; 25 U.S.C. 450 (c))); or an economic enterprise (as defined in section 3(e) of the Indian Financing Act of 1974 (Pub. L. 93-362; 25 U.S.C. 1452(e))) whether such economic enterprise is organized for profit or nonprofit purposes; which has an agreement with the Defense Logistics Agency to furnish procurement technical assistance to business entities.

(b) The Contractor shall provide cooperative agreement holders, upon their request, with a list of those appropriate employees or offices responsible for entering into subcontracts under defense contracts. The list shall include the business address, telephone number, and area of responsibility of each employee or office.

(c) The Contractor need not provide the listing to a particular cooperative agreement holder more frequently than once a year.

(End of clause)

#### 252.209-7000 ACQUISITION FROM SUBCONTRACTORS SUBJECT TO ONSITE INSPECTION UNDER THE INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY (NOV 1995)

(a) The Contractor shall not deny consideration for a subcontract award under this contract to a potential subcontractor subject to on-site inspection under the INF Treaty, or a similar treaty, solely or in part because of the actual or potential presence of Soviet inspectors at the subcontractor's facility, unless the decision is approved by the Contracting Officer.

(b) The Contractor shall incorporate this clause, including this paragraph (b), in all solicitations and contracts exceeding the simplified acquisition threshold in part 13 of the Federal Acquisition Regulation, except those for commercial items.

(End of clause)

#### 252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of \$25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

(End of clause)

#### 252.215-7000 PRICING ADJUSTMENTS (DEC 1991)

The term "pricing adjustment," as used in paragraph (a) of the clauses entitled "Price Reduction for Defective Cost or Pricing Data - Modifications," "Subcontractor Cost or Pricing Data," and "Subcontractor Cost or Pricing Data - Modifications," means the aggregate increases and/or decreases in cost plus applicable profits.

(End of clause)

#### 252.223-7004 DRUG-FREE WORK FORCE (SEP 1988)

(a) Definitions.

(1) "Employee in a sensitive position," as used in this clause, means an employee who has been granted access to classified information; or employees in other positions that the Contractor determines involve national security; health or safety, or functions other than the foregoing requiring a high degree of trust and confidence.

(2) "Illegal drugs," as used in this clause, means controlled substances included in Schedules I and II, as defined by section 802(6) of title 21 of the United States Code, the possession of which is unlawful under chapter 13 of that Title.

The term "illegal drugs" does not mean the use of a controlled substance pursuant to a valid prescription or other uses authorized by law.

(b) The Contractor agrees to institute and maintain a program for achieving the objective of a drug-free work force. While this clause defines criteria for such a program, contractors are encouraged to implement alternative approaches comparable to the criteria in paragraph (c) that are designed to achieve the objectives of this clause.

(c) Contractor programs shall include the following, or appropriate alternatives:

(1) Employee assistance programs emphasizing high level direction, education, counseling, rehabilitation, and coordination with available community resources;

(2) Supervisory training to assist in identifying and addressing illegal drug use by Contractor employees;

(3) Provision for self-referrals as well as supervisory referrals to treatment with maximum respect for individual confidentiality consistent with safety and security issues;

(4) Provision for identifying illegal drug users, including testing on a controlled and carefully monitored basis. Employee drug testing programs shall be established taking account of the following:

(i) The Contractor shall establish a program that provides for testing for the use of illegal drugs by employees in sensitive positions. The extent of and criteria for such testing shall be determined by the Contractor based on considerations that include the nature of the work being performed under the contract, the employee's duties, and efficient use of Contractor resources, and the risks to health, safety, or national security that could result from the failure of an employee adequately to discharge his or her position.

(ii) In addition, the Contractor may establish a program for employee drug testing--

(A) When there is a reasonable suspicion that an employee uses illegal drugs; or

(B) When an employees has been involved in an accident or unsafe practice;

(C) As part of or as a follow-up to counseling or rehabilitation for illegal drug use;

(D) As part of a voluntary employee drug testing program.

(iii) The Contractor may establish a program to test applicants for employment for illegal drug use.

(iv) For the purpose of administering this clause, testing for illegal drugs may be limited to those substances for which testing is prescribed by section 2.1 of subpart B of the "Mandatory Guidelines for Federal Workplace Drug Testing Programs" (53 FR 11980 (April 11, 1988), issued by the Department of Health and Human Services.

(d) Contractors shall adopt appropriate personnel procedures to deal with employees who are found to be using drugs illegally. Contractors shall not allow any employee to remain on duty or perform in a sensitive position who is found to use illegal drugs until such times as the Contractor, in accordance with procedures established by the Contractor, determines that the employee may perform in such a position.

(e) The provisions of this clause pertaining to drug testing program shall not apply to the extent that are inconsistent with state or local law, or with an existing collective bargaining agreement; provided that with respect to the latter, the Contractor agrees those issues that are in conflict will be a subject of negotiation at the next collective bargaining session.

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

(ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or

(iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.

(b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.

(End of clause)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992)

(a) Definitions. As used in this clause--

(1) "Foreign person" means any person other than a United States person as defined in Section 16(2) of the Export Administration Act of 1979 (50 U.S.C. App. Sec 2415).

(2) "United States person" is defined in Section 16(2) of the Export Administration Act of 1979 and means any United States resident or national (other than an individual resident outside the United States and employed by other than a United States person), any domestic concern (including any permanent domestic establishment of any foreign concern), and any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern which is controlled in fact by such domestic concerns, as determined under regulations of the President.

(b) Certification. By submitting this offer, the Offeror, if a foreign person, company or entity, certifies that it--

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. Sec 2407(a) prohibits a United States person from taking.

(End of clause)

252.226-7001 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES-DOD CONTRACTS (SEP 2001)

(a) Definitions. As used in this clause--

“Indian” means any person who is a member of any Indian tribe, band, group, pueblo, or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any “Native” as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

“Indian organization” means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C. Chapter 17.

“Indian-owned economic enterprise” means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitutes not less than 51 percent of the enterprise.

“Indian tribe” means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1452 (c).

“Interested party” means a contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(b) The Contract shall use its best efforts to give Indian organizations and Indian-owned economic enterprises the maximum practicable opportunity to participate in the subcontracts it awards, to the fullest extent consistent with efficient performance of the contract.

(c) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless and interested party challenges its status or the Contracting Officer has independent reason to question that status.

(d) In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs, Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street NW, MS-2626-MIB, Washington, DC 20240-4000. The BIA will determine the eligibility and will notify the Contracting Officer. No incentive payment will be made--

(1) Within 59 working days of subcontract award;

(2) While a challenge is pending; or

(3) If a subcontractor is determined to be an ineligible participant.

(e)(1) The Contractor, on its own behalf or on behalf of a subcontractor at any tier, may request an adjustment under the Indian Incentive Program to the following:

(i) The estimated cost of cost-type contract.

(ii) The target cost of a cost-plus-incentive-fee contract.

(iii) The target cost and ceiling price of a fixed-price incentive contract.

(iv) The price of a firm-fixed-price contract.

(2) The amount of the adjustment that may be made to the contract is 5 percent of the estimated cost, target cost, or firm-fixed price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(3) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(4) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor.

(5) If the Contractor requests and receives an adjustment on behalf of a subcontractor, the Contractor is obligated to pay the subcontractor the adjustment.

(f) The Contractor shall insert the substance of this clause, including this paragraph (f), in all subcontracts that--

(1) Are for other than commercial items; and

(2) Are expected to exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation.

(End of clause)

#### 252.227-7023 DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF GOVERNMENT. (MAR 1979)

All designs, drawings, specifications, notes and other works developed in the performance of this contract shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the Contractor. The Government shall be considered the "person for whom the work was prepared" for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the Contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws. The Contractor for a period of three (3) years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the Contractor shall have the right to retain copies of all works beyond such period.

(End of clause)

#### 252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

## 252.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

When the allowability of costs under this contract is determined in accordance with part 31 of the Federal Acquisition Regulation (FAR), allowability shall also be determined in accordance with part 231 of the Defense FAR Supplement, in effect on the date of this contract.

(End of clause)

## 252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

(a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.

(b) The price breakdown --

(1) Must include sufficient detail to permit an analysis of profit, and of all costs for --

(i) Material;

(ii) Labor;

(iii) Equipment;

(iv) Subcontracts; and

(v) Overhead; and

(2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.

(c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.

(d) The Contractor's proposal shall include a justification for any time extension proposed.

## 252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Title	File	Drawing No.
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(End of clause)

#### 252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

#### 252.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR part 31 and DFARS part 231, in effect on the date of this contract, apply.

#### 252.243-7002 REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

-----  
(Official's Name)  
-----



(Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including--

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to----

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustment under an incentive provision of the contract.

#### 252.245-7001 REPORTS OF GOVERNMENT PROPERTY (MAY 1994)

(a) The Contractor shall provide an annual report --

(1) For all DoD property for which the Contractor is accountable under the contract;

(2) Prepared in accordance with the requirements of DD Form 1662, DoD Property in the Custody of Contractors, or approved substitute, including instructions on the reverse side of the form;

(3) In duplicate, to the cognizant Government property administrator, no later than October 31.

(b) The Contractor is responsible for reporting all Government property accountable to this contract, including that at subcontractor and alternate locations.

(End of clause)

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## Section K - Representations, Certifications and Other Statements of Offerors

## CLAUSES INCORPORATED BY FULL TEXT

## 52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

(x) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to --

(ii) Those prices,

(c) The intention to submit an offer, or

(iii) The methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision \_\_\_\_\_ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) of this provision.

(c) If the offeror deletes or modifies subparagraph (a)(2) of this provision, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

## 52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence

Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(xi) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of provision)

#### 52.204-3 TAXPAYER IDENTIFICATION (OCT 1998)

##### (a) Definitions.

“Common parent,” as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“Taxpayer Identification Number (TIN),” as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

\_\_\_ TIN: \_\_\_\_\_

\_\_\_ TIN has been applied for.

\_\_\_ TIN is not required because:

\_\_\_ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

\_\_\_ Offeror is an agency or instrumentality of a foreign government;

\_\_\_ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

\_\_\_ Sole proprietorship;

\_\_\_ Partnership;

\_\_\_ Corporate entity (not tax-exempt);

\_\_\_ Corporate entity (tax-exempt);

\_\_\_ Government entity (Federal, State, or local);

\_\_\_ Foreign government;

\_\_\_ International organization per 26 CFR 1.6049-4;

\_\_\_ Other \_\_\_\_\_

(f) Common parent.

\_\_\_ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

\_\_\_ Name and TIN of common parent:

Name \_\_\_\_\_

TIN \_\_\_\_\_

(End of provision)

#### 52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals --

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

#### 52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002) - ALTERNATE I (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 562910.

(2) The small business size standard is 500 employees.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: \_\_\_\_\_.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

\_\_\_\_ Black American.

\_\_\_\_ Hispanic American.

\_\_\_\_ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

\_\_\_\_ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

\_\_\_\_ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

\_\_\_\_ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.



(End of provision)

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

- (a) ☐ It has, ☐ has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;
- (b) ☐ It has, ☐ has not, filed all required compliance reports; and
- (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.222-25 AFFIRMATIVE ACTION COMPLIANCE (APR 1984)

The offeror represents that

- (a) ☐ it has developed and has on file, ☐ has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or
- (b) ☐ has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of provision)

52.222-38 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (DEC 2001)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 38 U.S.C. 4212(d) (i.e., if it has any contract containing Federal Acquisition Regulation clause 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans), it has submitted the most recent VETS-100 Report required by that clause.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know

Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons:  
(Check each block that is applicable.)

( ) (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

( ) (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

( ) (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

( ) (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

( ) (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(End of clause)

#### 52.225-6 TRADE AGREEMENTS CERTIFICATE (MAY 2002)

(a) The offeror certifies that each end product, except those listed in paragraph (b) of this provision, is a U.S.-made, designated country, Caribbean Basin country, or NAFTA country end product, as defined in the clause of this solicitation entitled "Trade Agreements."

(b) The offeror shall list as other end products those supplies that are not U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products.

#### Other End Products

Line Item No.:

Country of Origin:-----

(List as necessary),

(c) The Government will evaluate offers in accordance with the policies and procedures of Part 25 of the Federal Acquisition Regulation. For line items subject to the Trade Agreements Act, the Government will evaluate offers of U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products without regard to the restrictions of the Buy American Act. The Government will consider for award only offers of U.S.-made, designated country, Caribbean Basin country, or NAFTA country end products unless the Contracting Officer determines that there are no offers for those products or that the offers for those products are insufficient to fulfill the requirements of this solicitation.

(End of provision)

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

## 252.223-7001 HAZARD WARNING LABELS (DEC 1991)

(a) "Hazardous material," as used in this clause, is defined in the Hazardous Material Identification and Material Safety Data clause of this contract.

(b) The Contractor shall label the item package (unit container) of any hazardous material to be delivered under this contract in accordance with the Hazard Communication Standard (29 CFR 1910.1200 et seq). The Standard requires that the hazard warning label conform to the requirements of the standard unless the material is otherwise subject to the labeling requirements of one of the following statutes:

(1) Federal Insecticide, Fungicide and Rodenticide Act;

(2) Federal Food, Drug and Cosmetics Act;

(3) Consumer Product Safety Act;

(4) Federal Hazardous Substances Act; or

(5) Federal Alcohol Administration Act.

(c) The Offeror shall list which hazardous material listed in the Hazardous Material Identification and Material Safety Data clause of this contract will be labeled in accordance with one of the Acts in paragraphs (b)(1) through (5) of this clause instead of the Hazard Communication Standard. Any hazardous material not listed will be interpreted to mean that a label is required in accordance with the Hazard Communication Standard.

MATERIAL (If None, Insert "None.")

ACT

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(d) The apparently successful Offeror agrees to submit, before award, a copy of the hazard warning label for all hazardous materials not listed in paragraph (c) of this clause. The Offeror shall submit the label with the Material Safety Data Sheet being furnished under the Hazardous Material Identification and Material Safety Data clause of this contract.

(e) The Contractor shall also comply with MIL-STD-129, Marking for Shipment and Storage (including revisions adopted during the term of this contract).

(End of clause)

## 252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

\_\_\_\_ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

\_\_\_\_ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

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## Section L - Instructions, Conditions and Notices to Bidders

INSTRUCTION, CONDITIONS

L.1. MAGNITUDE OF THIS PROJECT IS REPRESENTED BY THE FOLLOWING ESTIMATED PRICE RANGE: between \$5 million and \$25 million.

L.2. PROPOSALS: Proposals for the work described herein will be received until 2:00 p.m., local time, 28 March 2003, at the following address:

U. S. Army Corps of Engineers  
 Seattle District Contracting Division  
 ATTN: CENWS-CT-CB-CU  
 4735 East Marginal Way South  
 PO Box 3755  
 Seattle, WA 98124-3755

The required format is specified in this section, paragraph L.6. "PROPOSAL FORMAT."

NOTE: HAND-CARRIED PROPOSALS SHALL BE DELIVERED TO Contracting Division, Second Floor, Column C-5.

L.3. TYPE OF CONTRACT: The contracts awarded under this solicitation will be an Indefinite Delivery/Indefinite Quantity Firm Fixed Price type contracts.

L.4. GENERAL DESCRIPTION OF WORK:

It is anticipated that a wide variety of remedial and interim remedial activities will be included in the execution of this contract. A number of these types of activities are listed herein, however, this list is not intended to be exhaustive or all-inclusive but are only to be considered as examples of the types of activities, which might be required. New or emerging technologies, as they become available or applicable, may also be utilized during the term of this contract. Tasks required to prepare a site for investigation/survey or to remove immediate threats to human health or safety and imminent ecological threats might also be identified;

- a. Screening, identification, packaging and disposal of potentially hazardous waste.
- b. Removal, transport and disposal of hazardous and non-hazardous debris.
- c. Installation of security fencing, signage, barricades, warning flagging, etc.
- d. Temporary road installation, road repair, site access preparation, etc.
- e. Brushing, cleaning and grubbing.
- f. Removal/disposal/replacement of above ground and below ground storage tanks.
- g. Removal/disposal/replacement of buried and exposed piping,
- h. Removal/remediation/disposal of contaminated soils.
- i. Building demolition and debris removal disposal.
- j. Site restoration, seeding, replanting and revegetation.
- k. Water treatment systems to include installation, operation and maintenance.
- l. In-situ soil treatment and stabilization processes.
- m. Air quality monitoring.
- n. Asbestos, lead based paint and Radon abatement and mitigation
- o. Installation of water wells, monitoring wells, sampling wells, etc.
- p. Soil, water and air sampling and analysis.
- q. UXO avoidance capabilities and UXO Construction Support..
- r. Environmental facility/equipment upgrades.
- s. Waste minimization, and pollution prevention projects.
- t. Habitat restoration projects.
- u. Preparation of Management and Health & Safety Plans.

- v. Incidental design associated with the above activities.
- w. Landfill capping

L.5. PROPOSAL CONTENT: The Government intends to make the award selection without discussions. In order to maximize small business participation in this procurement, teaming arrangements or other small business consortiums are encouraged. However, the Government assumes no responsibility for the success of the "team" in obtaining a contract through the evaluation process or for the success or failure of the "team" under the contract by virtue of the preceding statement. The proposal must be complete and contain the offerers' most favorable terms. The proposal shall address and contain the information listed below. The information will be used by the Source Selection Board to evaluate and rate each proposal. Offerers are advised that conciseness and relevance of the proposal is important and unrelated information that is not pertinent will reduce evaluation scores. Proposals which provide only superficial coverage of the information required below may not receive additional consideration and may be excluded from the competitive range, if established. Additionally, should the proposal include any standard company terms and conditions that conflict with the terms and conditions of the solicitation, the proposal may be determined to be "unacceptable" and thus ineligible for award.

L.6. PROPOSAL FORMAT: In response to this RFP, the Small Business offerers shall submit an original and four (4) copies each of the technical proposal in 3-ring binders (no heat or spiral bound proposals). An original and one (1) copy of the price proposal shall be submitted under a separate cover, also in 3-ring-binders (no heat or spiral bound proposals). The Standard Form 33 (Offer) and continuation sheets, acknowledgement of amendments (Standard Form 30), if applicable, and Section K, Representations and Certifications should be included in the Price Proposal. The original technical and price proposal copies shall be stamped "original" on the cover of each binder. The total combined (technical and price) page limit is 150 pages. Proposal shall be single-sided only, with a minimum binding edge margin of 0.75 inches, and with a font no less than 11 point. A smaller type may be used on charts graphs, figures, diagrams, and schematics to accommodate a "make it fit" software capability, however, all text must be legible and easily read. If it is not easily readable, then it will not be evaluated. The page size of the Offerer's proposal shall not exceed 8 1/2" x 11". When included, foldout pages shall fold entirely within the document and shall only be used for graphic presentation. Foldout pages will be counted as two (2) pages. Each page of the proposal shall be numbered sequentially.

The following are excluded from the 150-page proposal limit:

- (xii) Section K, "Representations and Certifications",
- (xiii) SF33 and continuation sheets,
- (xiv) SF 30 Amendment(s),
- (xv) table of contents and lists of: tables, figures, and acronyms.

Offerers will NOT be allowed to incorporate pages by reference (no additional appendixes, addenda, etc.). Experience or clients noted as "Confidential" will not be considered for evaluation. Full disclosure will be required to receive credit.

Up to three (3) contracts may be awarded. All proposals shall contain the requirements stated within this solicitation document. Proposal clarity, organization (as requested in this solicitation), and cross-referencing is mandatory.

L.7. PERFORMANCE OF WORK BY CONTRACTOR: Offerer's attention is directed to FAR Clause 52.236-1, Performance of Work by Contractor. The successful offeror will be required to furnish the Contracting Officer a description of the work that will be performed by their organization (e.g., earthwork, paving, etc.), the percentage of the total work this represents, and the estimated cost thereof. Such description of work to be performed by the Contractor's own organization shall be indicated in the space provided on the Proposal Form, or shall be furnished to the Contracting Officer within 10 days after award of the contract.

L.8. COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA): The Contractor shall comply with OSHA standards as well as the Corps of Engineers General Safety Requirements Manual (EM 385-1-1). The



OSHA standards are subject to change and such changes may affect the Contractor in his performance under the contract. It is the Contractor's responsibility to know such changes and effective dates of changes. (KCD APR 84)

L.9. CONSTRUCTION EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE: Whenever a modification or equitable adjustment of contract price is required, the Contractor's cost proposal for equipment ownership and operating expenses shall be as set forth in SPECIAL CLAUSES paragraph titled "Equipment Ownership and Operating Expense Schedule." A copy of EP 1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" dated June 1993 can be ordered from the Government Printing Office (GPO) for by calling Telephone No. 202-783-3238.

L.10. TIME FOR ACCEPTANCE BY THE GOVERNMENT OF PROPOSALS: All offerers submitting proposals in response to this request agree that the Government shall have not less than 120 calendar days to accept any proposal, after the date indicated for receipt of proposals. In the event the Government cannot award a contract within this 120 calendar day period, any or all offerers may, at their option, extend the date for acceptance of their proposal or may resubmit their price proposals.

L. 11. DISPOSAL OF PROPOSALS: After award of the contract, proposal sets may be destroyed or may be kept for record. Proposal sets that are kept for record will be for Government use. Disclosure of proposal material, in whole or in part, outside the Government will be restricted only if the provisions of FAR Provision 52.215-1, Instructions to Offerers — Competitive Proposals, are in effect.

NOTE THE AFFIRMATIVE ACTION REQUIREMENT OF THE EQUAL OPPORTUNITY CLAUSE WHICH MAY APPLY TO THE CONTRACT RESULTING FROM THIS SOLICITATION FAR 52.222-26 AND FAR 52.222-27.

#### CLAUSES INCORPORATED BY FULL TEXT

#### 52.215-1 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (MAY 2001)

(a) Definitions. As used in this provision--

"Discussions" are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

"In writing or written" means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

"Proposal modification" is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

"Proposal revision" is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

"Time", if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals. (1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, or revision, of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii)(A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent

Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend: This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with-- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend: Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award. (1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best

terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(xvi) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

(End of provision)

#### 52.216-27 SINGLE OR MULTIPLE AWARDS. (OCT 1995)

The Government may elect to award a single delivery order contract or task order contract or to award multiple delivery order contracts or task order contracts for the same or similar supplies or services to two or more sources under this solicitation.

#### 52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
[Insert Goals]	[Insert Goals]

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

(1) Name, address, and telephone number of the subcontractor;

(2) Employer's identification number of the subcontractor;

(3) Estimated dollar amount of the subcontract;

(4) Estimated starting and completion dates of the subcontract; and

(5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is  
 [Contracting Officer shall insert description of the geographical areas where the contract is to be performed, giving the State, county, and city].

(End of provision)

(a) Definitions. Construction material, designated country construction material, domestic construction material, foreign construction material, and NAFTA country construction material, as used in this provision, are defined in the clause of this solicitation entitled "Buy American Act --Construction Materials under Trade Agreements" (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) Requests for determination of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-11 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act, based on claimed unreasonable cost of domestic construction materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers. (1) When an offer includes foreign construction material, other than designated country or NAFTA country construction material, that is not listed by the Government in this solicitation in paragraph (b)(3) of FAR clause 52.225-11, the offeror also may submit an alternate offer based on use of equivalent domestic, designated country, or NAFTA country construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-11 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of FAR clause 52.225-11 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic, designated country, or NAFTA country construction material, and the offeror shall be required to furnish such domestic, designated country, or NAFTA country construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

#### 52.233-2 SERVICE OF PROTEST (AUG 1996)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

\_\_\_\_\_. (Contracting Officer designate the official or location where a protest may be served on the Contracting Officer.)

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

#### 52.236-28 PREPARATION OF PROPOSALS--CONSTRUCTION (OCT 1997)

(a) Proposals must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a proposal must initial each erasure or change appearing on any proposal form.

(b) The proposal form may require offerors to submit proposed prices for one or more items on various bases, including--

(1) Lump sum price;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of paragraphs (b)(1) through (b)(3) of this provision.

(c) If the solicitation requires submission of a proposal on all items, failure to do so may result in the proposal being rejected without further consideration. If a proposal on all items is not required, offerors should insert the words "no proposal" in the space provided for any item on which no price is submitted.

(d) Alternate proposals will not be considered unless this solicitation authorizes their submission.

(End of provision)

#### MAGNITUDE OF CONSTRUCTION (FAR 36.204) (52. 236-4902) DEC 1999

(a) Amount of Construction for this task order solicitation is in the range of \$1 million to \$5 million.

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## Section M - Evaluation Factors for Award

EVALUATION FACTORS FOR AWARD

## 52215-4001 EVALUATION FACTORS FOR AWARD

1. The following criteria will be utilized as evaluation factors for award

1.1 GENERAL: This section provides specific information regarding evaluation factors that will be considered during technical proposal review.

1.2 METHOD OF PROCUREMENT: The Seattle District Corps of Engineers intends to procure this requirement on a competitive basis in accordance with the provisions set forth in this RFP. Up to three (3) Indefinite Delivery/Indefinite Quantity Firm Fixed Price Contracts will be awarded to the offerer selected under provisions set forth herein. Offerers are cautioned to read all sections of the RFP prior to assembling your proposal. Task Order One entitled "Phase I – Tongue Point Landfill Remedial Action, Former Tongue Point Naval Air Station, Astoria, Oregon" will be awarded to one of the three selected firms from Solicitation DACW67-03-R-0009 or from Solicitation DACW67-03-R-0008. The basis of award for Task Order One will be to the firm that provides a technically acceptable, lowest priced proposal as explained in that evaluation criteria. All proposals will be evaluated on the basis of acceptable or non-acceptable. A proposal which does not demonstrate the required information or experience for any area of the technical evaluation criterion, either for the general requirements or the specific task order proposal will be determined non-acceptable and provided no further consideration. If all technical proposals are determined non-acceptable at the Contracting Officers discretion discussions may be held.

1.3 Offerers are required to submit two technical proposals. Technical proposal one will address the general requirements necessary to perform the required work in all areas. Technical proposal two will consist of those elements of work only applicable to the task order one entitled, "Phase I – Tongue Point Landfill Remedial Action, Former Tongue Point Naval Air Station, Astoria, Oregon ". Price proposals will be submitted in support of the technical proposal submitted for Task Order One.

1.4 Basis of the source selection evaluation - This Section establishes the method to be implemented with regard to the evaluation of the proposals. Evaluation is to be based exclusively on the merits and contents of the proposal and any subsequent discussions required. Offerors not meeting the minimum requirements of all technical evaluation factors shall be determined to be **NON-ACCEPTABLE** and will not be considered for award. Technical Proposals will be evaluated on an **ACCEPTABLE** or **NON-ACCEPTABLE** basis only. Proposals must set forth full, accurate, and complete information as required by this RFP. Absence of information will be deemed as if no support for that factor was provided. **Award will be made to the lowest price technically acceptable offeror.**

**Technical Evaluation Ratings - Definitions**

**Acceptable:** An acceptable rating indicates that the offeror has provided sufficient information to meet the minimum qualifications/standards described in the technical evaluation factor.

**Non-Acceptable:** A non-acceptable rating indicates that the offeror has not provided sufficient information to meet the minimum qualifications/standards described in the technical evaluation factor.

## 1.5 TECHNICAL CRITERIA:

1.5.1 Technical Proposal one will be evaluated on the basis of the following technical criteria:

1.5.1.1. RELEVANT EXPERIENCE/SUCCESSFUL COMPLETION OF MULTIDISCIPLINARY ENVIRONMENTAL INVESTIGATION AND ENVIRONMENTAL REMEDIATION PROJECTS.

(1) The Offeror shall submit descriptions of at least five but no more than eight Hazardous, Toxic and Radiological Waste (HTRW) projects demonstrating relevant experience. Relevant experience is defined as experience similar in scope, cost and complexity as per Section C, Scope of Work. Only those projects for which the Offeror was the Prime Contractor and which were completed within the past seven years should be submitted. These projects shall be completed or substantially complete (90% or more). General experience referenced may be from any location. Specific experience and the descriptions of at least two projects provided by the Offeror will be from sites located within the Pacific Northwest (Washington, Oregon, Montana and Idaho). In all cases, experience gained with government agencies, e.g., federal, state, county, etc., is preferred. With each project, describe the remedial technologies your firm has used working on various government agency sites. The Offeror shall be familiar with coordination and security requirements while working on active and non-active military sites. If non-government projects are used, provide a complete description of the project location. As a minimum, for each project listed, provide:

- a) Project Title and location
- b) Dollar value
- c) Project start and completion period
- d) Description of the project scope of work
- e) Brief description of how the project is relevant, and meets the requirements of this RFP project.
- f) Current primary point of contact for the customer (name, relationship to project, agency/firm affiliation, city and state, phone numbers)

(2) Examples of experience will also include description of your firm's ability to work on multiple sites simultaneously.

(3) For each of the projects identified by the Offeror per the requirement in 1a above, information will be provided which shows original completion schedule versus actual completion schedule, and information will be provided which shows the Offeror's capabilities to maintain project schedule.

(4) For each of the projects identified by the Offeror per the requirement in 1a above, information shall be provided which shows original cost to completion versus actual cost for completion, and information, which shows your firm's ability to minimize cost growth. If actual costs are not used, percentages are acceptable. The Offeror shall take this opportunity to identify areas where cost savings were realized due to cost effective Offeror operations.

#### 1.5.1.2. MANAGEMENT AND PERSONNEL CAPABILITIES.

(1) A complete organization chart shall be provided identifying corporate structure. The Offeror shall submit the names and resumes for key personnel involved in contract execution. Teaming arrangements will be identified as well as primary points of contact with teaming firms.

(2) Provide background information for key personnel, highlighting past experience with remedial technologies, quick response and schedule adherence. Include a summary of applicable training and certifications including health and safety training and experience with various state and federal regulations. The Offeror will identify and verify experience and professional credentials for key Contractor and sub-contractor personnel, via submittal of current resumes and appropriate copies of professional registration documentation. Particular attention will be given to Engineering, Chemist, Certified Industrial Hygienist, Geologist, Hydrogeologist, and Registered Environmental Managers and Professionals.

(3) Resumes should be no more than two pages per individual and submitted in a format similar to the one below for each discipline listed above, not to exceed three examples. It is expected that the key individuals in your proposal will be the individuals who perform work under the contract. **The contracting officer must approve substitute personnel:**

<b><u>RESUME FORMAT</u></b>	
<i>Name and Title</i>	
<ol style="list-style-type: none"> <li><b>1. <i>Proposed Duties/Functions</i></b></li> <li><b>2. <i>Firm Affiliation and Years Affiliated</i></b></li> <li><b>3. <i>Years of Experience performing duties/functions.</i></b></li> <li><b>4. <i>Education – School attended, Degree, Certification, Year, and Specialization</i></b></li> <li><b>5. <i>List Active Registrations (Professional or Technical Licenses/Certifications)</i></b></li> <li><b>6. <i>Describe Specific Qualifications</i></b></li> <li><b>7. <i>List Projects worked on to Include</i></b></li> </ol>	
<b>Project Title &amp; Location</b>	
<b>Scope, Size and Complexity</b>	
<b>Duties/Functions</b>	
<b>Date of project</b>	
<b>8. <i>Demonstrate how each project submitted is relevant</i></b>	

#### 1.5.1.3. TECHNICAL EXCELLENCE:

(1) The Offeror will provide evidence that the firm has superior project planning, documentation and reporting capabilities. Examples of these capabilities include but are not be limited to, Project Management Plans, Site Specific Health and Safety Plans, Chemical Data Analysis Plans, Technical Memorandums, Hazardous Waste Manifesting documentation, and final project reports.

(2) The Offeror will identify data management capabilities in the collection, input and manipulation of HTRW site and project data and provide the data in a useable electronic database that can support the use of the data in a website environment and compatible with the use of the data in a Geographic Information System (GIS) platform if it is deemed warranted for the project.

#### 1.5.1.4. PAST PERFORMANCE:

Past performance of the prime contractor will be evaluated using the CCASS database. All performance ratings for the past 7 years shall be considered. If an offeror does not have past performance available in CCASS or wishes to augment the CCASS system ratings, the offerors may ask customers to submit the Customer Satisfaction Survey found at the end of this section. For each project constructed for Private Industry, provide a completed Customer Satisfaction Survey for each applicable project within the last 7 years. All Customer Satisfaction Surveys must be submitted to the Government from the customer or agency that is providing the information. Further instructions are found at the top of the Customer Satisfaction Survey. It is requested that only relevant projects be included. A relevant project is one of the same scope, cost and. Should the offerors want to review the CCASS ratings contained in the Corps of Engineers CCASS Database, they may request the information by fax on company letterhead at the following telefax number: (503) 808-4596. The Government reserves the right to contact the evaluator on previous Government or Private Sector work to verify the Offeror's experience. In the case of an offeror without a record of past performance or for whom information on past performance is not available, the offeror **may not be evaluated as favorable or unfavorable** on past performance (See FAR 15.305(a)(2)(iv)). An overall rating of satisfactory or above on CCASS performance evaluations and an overall acceptable rating on Customer Satisfaction Surveys will be given an acceptable rating.

**Offeror Submitted Surveys.** Surveys submitted directly by the offeror may not be considered. Please ensure envelopes containing surveys being submitted to this office do not contain the offeror's return address.

**As a maximum,** no more than five (5) customer satisfaction surveys will be considered for the prime firm (i.e., the firm signing the Standard Form 33, Solicitation, Offer and Award) for work not listed (i.e., civilian projects) in the Government CCASS system.

1.5.1.5 A price proposal is not required with technical evaluation one.

1.6.1.1. Technical Proposal two for Task Order One will be evaluated on the basis of the following technical criteria. (The technical package for Task Order One is included at the end of Section M.):

(1) EXPERIENCE/SUCCESSFUL COMPLETION OF SIMILAR PROJECTS

a. Provide a written description of successfully completed projects involving landfill capping, abandonment of existing wells, and installation of LNAPL collection trenches with associated collection, storage, and disposal of LNAPL. Projects should be substantially completed (90 percent or more at the time of this submittal). For this factor, projects are identified as single locations or single task orders. List at least two but not more than five projects.

b. Specific examples reflecting experience with local, state, and federal regulations applicable to compliance with the Endangered Species Act, Clean Water Act, protection of regulated wetlands, and waste handling (including TSCA wastes) and disposal in Oregon if available, should be included in the projects identified under 1A. As a minimum, for each project listed, provide:

- 1) Project Title and location
- 2) Dollar value
- 3) Project start and completion period
- 4) Description of the project scope of work
- 5) Brief description of how the project is relevant, and meets the requirements of this RFP project.
- 6) Current primary point of contact for the customer (name, relationship to project, agency/firm affiliation, city and state, phone numbers)

(2) MANAGEMENT AND PERSONNEL CAPABILITIES

a. Provide background information for key personnel, highlighting past experience with landfill capping, abandonment of existing wells, and installation of LNAPL collection trenches with associated collection, storage, and disposal of LNAPL. Include any citations or warnings that the firm has received for violations related to any type of waste handling/disposal project. Include a summary of applicable training including health and safety training and experience with various state and federal regulations.

b. Provide background information for key subcontractors, highlighting purpose in partnering, past experience with landfill capping, abandonment of existing wells, and installation of LNAPL collection trenches with associated collection, storage, and disposal of LNAPL. Include any citations or warnings that the firm has received for violations related to any type of waste handling/disposal project. Include a summary of applicable training including health and safety training and experience with various state and federal regulations.

### (3) CONSTRUCTION SCHEDULE

a. Provide a detailed schedule indicating the ability to complete all work in accordance with the completion dates shown in the solicitation. Assume contract NTP by 01 June 2003. At a minimum the schedule shall include the following:

- NTP
- Preparing RAMP and other submittals, obtaining permits
- Mobilizing to the site
- Site grading
- Abandoning designated wells
- Installing interim LNAPL collection trench
- Placing geotextile delineator fabric
- Demobilizing from the site

Failure to provide a schedule that meets the completion dates shown in solicitation may result in elimination of the Offeror from further consideration.

1.5.1.6 PRICE: Price will be evaluated for completeness and reasonableness only for those firms determined to be technically acceptable on both general and specific task order evaluation. Award will be made to the lowest priced technically acceptable firm.

**CUSTOMER SATISFACTION SURVEY (PAGE 1 OF 2)**

DACW67-03-R-0008/0009 – Multiple Award Remediation Contract (MARC) for Washington, Oregon, Idaho and Montana

**SECTION 1 -- TO BE COMPLETED BY THE OFFEROR AND PROVIDED TO THE CUSTOMER REFERENCE****Name of Firm Being Evaluated:** \_\_\_\_\_**Project Title & Location:** \_\_\_\_\_**Project Dollar Value:** \_\_\_\_\_**Year Completed:** \_\_\_\_\_ **Project Manager:** \_\_\_\_\_**SECTION 2 -- TO BE COMPLETED BY THE CUSTOMER REFERENCE AND MAILED, HAND-DELIVERED OR FAXED DIRECTLY TO:**

U.S. Army Corps of Engineers, Seattle District  
Attn: CENWS-CT-CB-CU, Bonnie Lackey  
P.O. Box 3755  
Seattle, WA 98124-3755

FAX: (206) 764-6817  
Street Address:  
4735 E. Marginal Way S.  
Seattle WA 98134-2385

**Forms submitted by other than the customer (i.e., by the offeror), will not be considered.**

OVERVIEW: The firm shown above has submitted a proposal on a Seattle District Corps of Engineers project and provided your name as a customer reference. Part of our evaluation process requires information on the firm's past performance. Your input is important to us and responses are required no later than the time and date proposals are due for inclusion in our evaluation.

**Name of Individual completing survey:** \_\_\_\_\_**Firm Name:** \_\_\_\_\_ **Phone Number:** \_\_\_\_\_**Relationship to this Project:** \_\_\_\_\_

The Following Chart depicts the rating that are to be used to evaluate the contractor's performance:

<b>E</b>	<b>VG</b>	<b>S</b>	<b>M</b>	<b>U</b>
Exceptional	Very Good	Satisfactory	Marginal	Unsatisfactory
<p>Performance met all contract requirements and exceeded expectations.</p> <p>Problems, if any, were negligible, and were resolved in a timely and highly effective manner.</p>	<p>Performance met all contract requirements and exceeded some.</p> <p>There were a few minor problems which the contractor resolved in a timely, effective manner.</p>	<p>Performance met contract requirements there were some minor problems, and corrective actions taken by the contractor were satisfactory.</p>	<p>Performance did not meet some contractual requirements. There were problems, some of a serious nature, for which corrective action was only marginally effective.</p>	<p>Performance did not meet contractual requirements. There were serious problems, and the contractor's corrective actions were ineffective.</p>

**CUSTOMER SATISFACTION SURVEY (PAGE 2 OF 2)**

DACW67-03-R-0008/0009 – Multiple Award Remediation Contracts (MARC) for Washington, Oregon, Idaho and Montana

**In the following blocks, please indicate your overall level of satisfaction with the work performed by the firm shown in Section 1.****Reference the chart outlined on page 1 of this survey.****For any marginal or unsatisfactory rating, please provide explanatory narratives in the remarks block. These narratives need not be lengthy, just detailed. If a question is not applicable, circle N/A. If more space is needed, then go to the end of the questionnaire or attach additional pages. Be sure to identify your continued narration with the respect line number, your name and project name.**

	Quality of Work	Circle the appropriate rating using the chart on page 1
A	Quality of Workmanship	E V S M U N/A
B.	Adequacy of the Quality Control	E V S M U N/A
C.	Adequacy of Materials	E V S M U N/A
D.	Adequacy of Submittals	E V S M U N/A
E.	Adequacy of As -Builds	E V S M U N/A
F.	Use of specified materials	E V S M U N/A
G.	Identification/correction of deficient work in a timely manner.	E V S M U N/A
H.	Suggested solutions and initiative to implement solutions.	E V S M U N/A

**REMARKS: (Discuss strengths and weaknesses of the firm)**


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**Your assistance in providing this past performance information is appreciated.**



## CLAUSES INCORPORATED BY FULL TEXT

## 52.214-5000 APPARENT CLERICAL MISTAKES (MAR 1995)--EFARS

(a) For the purpose of initial evaluations of bids, the following will be utilized in the resolving arithmetic discrepancies found on the face of bidding schedule as submitted by the bidder:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the government will proceed on the assumption that the bidder intends his bid to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

(End of statement)

## 52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

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**US Army Corps  
of Engineers  
Seattle District**

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# **PHASE I – TONGUE POINT LANDFILL REMEDIAL ACTION**

**FORMER TONGUE POINT NAVAL AIR STATION**

**ASTORIA, OREGON**

**Construction Solicitation  
and Specifications**

**FEB, 2003**

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## SCHEDULE

Item No.	Description of Item	Quantity	Unit	Unit Price	Amount
<u>BASE ITEMS</u>					
0001	Mobilization and Demobilization	1	JOB	SUM	\$_____
0002	Remedial Action Management Plan	1	JOB	SUM	\$_____
0003	All Work for Phase I Tongue Point Landfill Remedial Action, except for Item Nos. 0001, 0002, and 0004 through 0015	1	JOB	SUM	\$_____
0004	Construct Access Roads	1	JOB	SUM	\$_____
0005	Abandon Monitoring Wells	1	JOB	SUM	\$_____
0006	Install Permanent Utilities	1	JOB	SUM	\$_____
0007	Subgrade Preparation	1	JOB	SUM	\$_____
0008	Install LNAPL Collection Trench	2,100	SF	\$_____	\$_____
0009	Install LNAPL Sumps, Pumps, Controls, and Storage Tanks	1	JOB	SUM	\$_____
0010	Procure, Load, Haul, and Place Preload Fill No. 1	12,000	CY	\$_____	\$_____
0011	Place Preload Fills Nos. 2 through 5	1	JOB	SUM	\$_____
0012	Record Drawings	1	JOB	SUM	\$20,000
0013	Operation and Maintenance During Construction	1	JOB	SUM	\$_____
TOTAL BASE ITEMS					\$_____
<u>OPTION ITEMS</u>					
0014	Remove, Transport, and Dispose of Tank Contents	800	GAL	\$_____	\$_____
0015	Operation and Maintenance Following Construction	12	MO	\$_____	\$_____
TOTAL OPTIONAL ITEMS					\$_____
<b>GRAND TOTAL</b>					<b>\$_____</b>

Notes:  
CY - cubic yard  
MO - month  
SF - square feet

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## TABLE OF CONTENTS

### SPECIAL CLAUSES

PARAGRAPH NO.	PARAGRAPH TITLE
SC-1	COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK
SC-1.1	OPTION FOR INCREASED QUANTITY
SC-2	LIQUIDATED DAMAGES - CONSTRUCTION
SC-3	TIME EXTENSIONS
SC-4	DELETED - VARIATIONS IN ESTIMATED QUANTITIES - SUBDIVIDED ITEMS
SC-5	DELETED - INSURANCE - WORK ON A GOVERNMENT INSTALLATION (Refer to Section 01140, paragraph “Minimum Insurance Coverages And Requirements”)
SC-6	DELETED - CONTINUING CONTRACTS
SC-7	PERFORMANCE OF WORK BY THE CONTRACTOR
SC-8	PHYSICAL DATA
SC-9	QUANTITY SURVEYS
SC-10	LAYOUT OF WORK
SC-11	RESERVED
SC-12	DELETED - AIRFIELD SAFETY PRECAUTIONS
SC-13	DELETED - IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY
SC-14	EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE
SC-15	PAYMENT FOR MATERIALS DELIVERED OFF-SITE
SC-16	DELETED - ORDER OF PRECEDENCE
SC-17	DELETED - LIMITATION OF PAYMENT FOR DESIGN
SC-18	CONTRACT DRAWINGS AND SPECIFICATIONS
SC-19.	DELETED - TECHNICAL PROPOSAL - COPIES TO BE FURNISHED UPON AWARD
SC-20.	DELETED - COMPLIANCE CERTIFICATION
SC-21.	DELETED - VALUE ENGINEERING
SC-22.	EPA ENERGY STAR

TABLE OF CONTENTS (Cont.)

SPECIAL CLAUSES

PARAGRAPH NO.	PARAGRAPH TITLE
SC-23	RECOVERED MATERIALS
ATTACHMENT A	INDEX OF DRAWINGS



## SPECIAL CLAUSES

SC-1. COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)  
(FAR 52.211-10).

(a) The Contractor shall be required to (1) commence work under this Contract within 10 calendar days after the date the Contractor receives the notice to proceed, (2) prosecute the work diligently, and (c) complete the Base work, Items 0001 through 0013, not later than 680 calendar days after date of receipt by Contractor of notice to proceed. The time stated for completion shall include final cleanup of the premises. See SC-1.1 for completion period for optional work items.

(b) The work is subject to the phasing and completion requirements specified under Section 01145, SITE SPECIFIC SUPPLEMENTARY REQUIREMENTS.

## SC-1.1 OPTION FOR INCREASED QUANTITY

a. The Government may increase the quantity of work awarded by exercising one or more of the Optional Bid Item(s) 0014 and 0015 at any time, or not at all, but no later than 45 calendar days prior to the end of the base contract period, including any extensions. Notice to proceed on work Item(s) added by exercise of the option(s) will be given upon execution of consent of surety.

b. The parties hereto further agree that any option herein shall be considered to have been exercised at the time the Government deposits written notification to the Contractor in the mails.

c. Completion Times/Contract period:

(1) Item 0014 - The time allowed for completion under this contract will be the same as that for the base items and will be measured from the date of receipt of the notice to proceed for the base item(s).

(2) Item 0015 - Contract period for O&M will commence after final acceptance or beneficial occupancy date as determined by the Contracting Officer unless sooner terminated under the provisions of the contract and will not exceed a period of 12 months.

## SC-2. LIQUIDATED DAMAGES - CONSTRUCTION (SEP 2000) (FAR 52.211-12)

(a) If the Contractor fails to complete the work within the time specified in the Contract, or any extension, the Contractor shall pay to the Government as liquidated damages, as follows:

(1) Base Items 0001 through 0013 and Optional Item 0014 - the sum of \$1,386.00 for each day of delay until the work is completed or accepted.

(2) Optional Item 0015 – no additional liquidated damages are applicable.

(b) If the Government terminates the Contractor's right to proceed, the resulting damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess cost of repurchase under the Termination clause of the CONTRACT CLAUSES.

SC-3. TIME EXTENSIONS (Sept 2000) (FAR 52.211-13): Time extensions for contract changes will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. The change order granting the time extension may provide that the Contract completion date will be extended only for those specific elements related to the changed work and that the remaining contract completion dates for all other portions of the work will not be altered. The change order also may provide an equitable readjustment of liquidated damages under the new completion schedule.

SC-4. DELETED

SC-5. DELETED

SC-6. DELETED

SC-7. PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984) (FAR 52.236-1): The Contractor shall perform on the site, and with its own organization, work equivalent to at least fifteen percent (15%) of the total amount of work to be performed under the Contract. The percentage may be reduced by a supplemental agreement to this Contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

SC-8. PHYSICAL DATA (APR 1984) (FAR 52.236-4): Data and information furnished or referred to below is for the Contractor's information. The Government will not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) Weather Conditions: Each bidder shall be satisfied before submitting his bid as to the hazards likely to arise from weather conditions. Complete weather records and reports may be obtained from any National Weather Service Office.

(b) Transportation Facilities: Each bidder, before submitting his bid, shall make an investigation of the conditions of existing public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress at the jobsite. The unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of the work.

SC-9. QUANTITY SURVEYS (APR 1984) (FAR 52.236-16)

(a) Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.

(b) The Contractor shall conduct the original and final surveys and surveys for any periods for which progress payments are requested. All these surveys shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a

specific instance. The Government shall make such computations as are necessary to determine the quantities of work performed or finally in place. The Contractor shall make the computations based on the surveys for any periods for which progress payments are requested.

SC-10. LAYOUT OF WORK (APR 1984) (FAR 52.236-17): The Contractor shall lay out its work from Government-established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due, or to become due, to the Contractor.

SC-11. RESERVED

SC-12. DELETED

SC-13. DELETED

SC-14. EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)-  
(EFARS 52.231-5000)

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region VIII. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(e) Copies of EP1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" Volumes 1 through 12 are available in Portable Document Format (PDF) and can be viewed or downloaded at <http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/cecw.htm>. A CD-ROM containing (Volumes 1-12) is available through either the Superintendent of Documents or Government bookstores. For additional information telephone 202-512-2250, or access on the Internet at [http://www.access.gpo.gov/su\\_docs](http://www.access.gpo.gov/su_docs).

SC-15. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (MAR 1995)-(EFARS 52.232-5000)

(a) Pursuant to FAR clause 52.232-5, Payments Under Fixed Priced Construction Contracts, materials delivered to the contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the technical provisions; or (2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

(b) Such payment will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to the following items: Any other construction material stored offsite may be considered in determining the amount of a progress payment.

SC-16. AND SC-17. DELETED

SC-18. CONTRACT DRAWINGS AND SPECIFICATIONS (AUG 2000)(DOD FAR SUPP 252.236-7001)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;
- (4) Be responsible for any errors which might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general—

(1) Large scale drawings shall govern small scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified in the index of drawings attached at the end of the Special Clauses (Attachment A).

SC-19. THROUGH SC-21. DELETED

SC-22. EPA ENERGY STAR: The Government requires that certain equipment be Energy Star compliant. Initially, the sole Energy Star requirement shall be the self certification by the bidder that the specified equipment is Energy Star compliant. Within 3 months of the availability of an EPA sanctioned test for Energy Star compliance, the Contractor shall submit all equipment upgrades and additions for testing and provide proof of compliance to the Government upon completion of testing. Testing shall be at the Contractor's expense.

SC-23. RECOVERED MATERIALS: The Corps of Engineers encourages all bidders to utilize recovered materials to the maximum extent practicable. The attached APPENDIX R contains procurement guidelines for products containing recovered materials.

## APPENDIX R

## PART 247 - COMPREHENSIVE PROCUREMENT GUIDELINE FOR PRODUCTS CONTAINING RECOVERED MATERIALS

40 CFR Ch. 1 (9-1-99 Edition)

## Subpart B-Item Designations

## § 247.10 Paper and paper products.

Paper and paper products, excluding building and construction paper grades.

## § 247.11 Vehicular products.

- (a) Lubricating oils containing re-refined oil, including engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils.
- (b) Tires, excluding airplane tire
- (e) Reclaimed engine coolants, excluding coolants used in non-vehicular applications.

## 247.12 Construction products.

- (a) Building insulation product including the following items:
  - (1) Loose-fill insulation, including but not limited to cellulose fiber, mineral fibers (fiberglass and rock vermiculite, and perlite;
  - (2) Blanket and batt insulation, including but not limited to mineral fibers (fiberglass and rock wool).
  - (3) Board (sheathing, roof decking wall panel) insulation, including but not limited to structural fiberboard and laminated paperboard products perlite composite board, polyurethane, polyisocyanurate, polystyrene, phenolics, and composites; and
  - (4) Spray-in-place insulation, including but not limited to foam-in-place polyurethane and polyisocyanurate and spray-on cellulose.
- (b) Structural fiberboard and laminated paperboard products for applications other than building insulation, including building board, sheathing shingle backer, sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (cover board).
- (c) Cement and concrete, including concrete products such as pipe and block, containing coal fly as ground granulated blast furnace (GGBF) slag.
- (d) Carpet made of polyester fiber use in low- and medium-wear applications.
- (e) Floor tiles and patio block containing recovered rubber or plastic.
- (f) Shower and restroom dividers/partitions containing recovered plastic or steel.
- (g) (1) Consolidated latex paint used for covering graffiti; and
- (2) Reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood and metal surfaces.

§247.13 Transportation products.

- (a) Traffic barricades and traffic cones used in controlling or restricting vehicular traffic.
- (b) Parking stops made from concrete or containing recovered plastic or rubber.
- (c) Channelizers containing recovered plastic or rubber.
- (d) Delineators containing recovered plastic, rubber, or steel.
- (e) Flexible delineators containing recovered plastic.

§ 247.14 Park and recreation products

- (a) Playground surfaces and running tracks containing recovered rubber or plastic.
- (b) Plastic fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications.

247.15 Landscaping products.

- (a) Hydraulic mulch products containing recovered paper or recovered wood used for hydroseeding and as an over-spray for straw mulch in landscaping, erosion control, and soil reclamation.
- (b) Compost made from yard trimmings, leaves, and/or grass clippings for use in landscaping, seeding of grass or other plants on roadsides and embankments, as a nutritious mulch under trees and shrubs, and in erosion control and soil reclamation.
- (c) Garden and soaker hoses containing recovered plastic or rubber.
- (d) Lawn and garden edging containing recovered plastic or rubber.

§ 247.16 Non-paper office product.

- (a) Office recycling containers and office waste receptacles.
- (b) Plastic desktop accessories.
- (c) Toner cartridges.
- (d) Binders.
- (e) Plastic trash bags.
- (f) Printer ribbons.
- (g) Plastic envelopes.

§ 247.17 Miscellaneous products.

Pallets containing recovered wood, plastic, or paperboard.

END OF SECTION

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## INDEX OF DRAWINGS

Phase 1, Tongue Point Landfill Remedial Action,  
 Former Tongue Point Naval Air Station  
 Astoria, Oregon  
 File No. 335S/833-90-01

<b>SHEET NUMBER</b>	<b>PLATE NUMBER</b>	<b>TITLE</b>	<b>REVISION NUMBER</b>	<b>DATE</b>
1	G-1	Title Sheet: Vicinity Map, Area Map, and Schedule of Drawings		2/13/03
2	G-2	Abbreviations, Legend and General Notes		2/13/03
3	G-3	Site Plan/Existing Conditions		2/13/03
4	C-1	Access Roads, Utilities, and Staging Areas		2/13/03
5	C-2	Well Abandonment and Protection Plan		2/13/03
6	C-3	Survey Control Plan		2/13/03
7	C-4	Subgrade Preparation and Stormwater Management Plan		2/13/03
8	C-5	Access Road and Stormwater Management Details		2/13/03
9	C-6	Temporary LNAPL Collection and Storage System Plan		2/13/03
10	C-7	LNAPL Collection Trench Sections and Details		2/13/03
11	C-8	Preload Plan		2/13/03
12	C-9	Preload Well Protection Details		2/13/03
13	M-1	LNAPL Collection and Storage System Details		2/13/03
14	M-2	Utility Pad, Compressor, and Water Supply Line Details		2/13/03
15	E-1	Electrical Diagrams and Schedules		2/13/03

INDEX OF DRAWINGS (Cont.)

<b>SHEET NUMBER</b>	<b>PLATE NUMBER</b>	<b>TITLE</b>	<b>REVISION NUMBER</b>	<b>DATE</b>
16	E-2	Electrical Equipment Layout		2/13/03

STANDARD DETAILS BOUND IN THE SPECIFICATIONS

<b>DRAWING NUMBER</b>	<b>SHEET NUMBER</b>	<b>TITLE</b>	<b>DATE</b>
---------------------------	-------------------------	--------------	-------------

SECTION 01501 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1, 2, & 3	Civil Works Project Identification and Safety Signs	REV 07APR88
1	Hard Hat Sign	10SEP90

END OF ATTACHMENT A, SECTION 00800

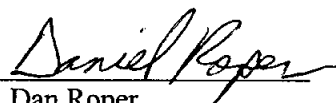
# DESIGN AUTHENTICATION

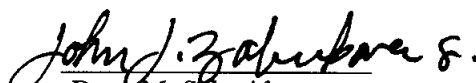
**Phase 1, Tongue Point Landfill Remedial Action,  
Former Tongue Point Naval Air Station, Astoria, Oregon  
DACW67-03-R-0008/0009**

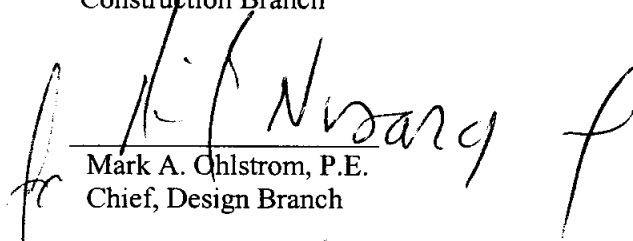
Signatures affixed below indicate the drawings and specifications included in this solicitation were prepared, reviewed and certified in accordance with Department of Army Engineer Regulation ER 1110-345-100, DESIGN POLICY FOR MILITARY CONSTRUCTION.

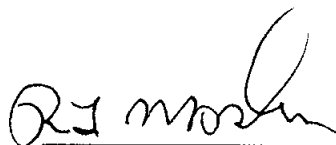
(Signed Drawings on File)

\_\_\_\_\_  
David R. Haddock, Principal of Firm.  
URS Greiner Woodward Clyde

  
\_\_\_\_\_  
Dan Roper  
COE Project Manager

*FOR*   
\_\_\_\_\_  
Dean M. Schmidt  
Chief, Tech. Eng. & Review Section,  
Construction Branch

*for*   
\_\_\_\_\_  
Mark A. Ohlstrom, P.E.  
Chief, Design Branch

  
\_\_\_\_\_  
Rick L. Moshier, P.E.  
Chief, Engineering & Construction Division

This project was designed for the U.S. Army Corps of Engineers, Seattle District. The initials and/or signatures and registration designations of individuals appearing on these project documents are as required by ER 1110-1-8152, ENGINEERING AND DESIGN PROFESSIONAL REGISTRATION.

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GENERAL DECISION OR020017 01/17/2003 OR17

Date: January 17, 2003

General Decision Number OR020017

Superseded General Decision No. OR010017

State: Oregon

Construction Type:

DREDGING

HEAVY

HIGHWAY

County(ies):

STATEWIDE

DREDGING, HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/01/2002
1	03/22/2002
2	03/29/2002
3	04/05/2002
4	04/19/2002
5	05/03/2002
6	06/07/2002
7	07/05/2002
8	08/02/2002
9	08/23/2002
10	08/30/2002
11	10/18/2002
12	11/29/2002
13	12/13/2002
14	01/03/2003
15	01/10/2003
16	01/17/2003

COUNTY(ies):

STATEWIDE

BOIL0500A 10/01/2002

	Rates	Fringes
BOILERMAKERS	27.22	13.55

BROR0001G 06/01/2002

	Rates	Fringes
BAKER, BENTON (NORTH), CLACKAMAS, CLATSOP, COLUMBIA, GILLIAM, HARNEY, HOOD RIVER, LINCOLN (NORTH), LINN (NORTH), MALHEUR (NORTH), MARION, MORROW, MULTNOMAH, POLK, SHERMAN, TILLAMOOK, UMATILLA, UNION, WALLOWA, WASCO (NORTH), WASHINGTON AND YAMHILL COUNTIES		

BRICKLAYERS	26.62	10.10
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BROR0001I 06/01/2002

	Rates	Fringes
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BENTON (SOUTH), CROOK, DESCHUTES, GRANT, JACKSON, JEFFERSON,  
 KLAMATH, LAKE, LANE, LINCOLN (SOUTH), LINN (SOUTH), MALHEUR  
 (SOUTH), WASCO (SOUTH) AND WHEELER COUNTIES

BRICKLAYERS	25.40	9.75
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CARP9001B 12/01/2001

	Rates	Fringes
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CARPENTERS

ZONE 1:

CARPENTERS	26.83	8.29
MILLWRIGHTS	27.33	8.29
PILEDRIVERS	27.33	8.29
DIVERS	63.75	8.29
DIVERS TENDERS	29.33	8.29
DIVER STANDBY	31.88	8.29
MANIFOLD AND/OR DECOMPRESSION CHAMBER OPERATORS	29.33	8.29

DEPTH PAY

50 to 100 feet	\$1.00 per foot over 50 feet
100 to 150 feet	1.50 per foot over 100 feet
150 to 200 feet	2.00 per foot over 150 feet

Zone Differential (Add to Zone 1 rates):

Zone 2 -	\$0.85
Zone 3 -	1.25
Zone 4 -	1.70
Zone 5 -	2.00

Zone 6 -	3.00
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ZONE 1 - All jobs or projects located within 30 miles of the  
 respective City Hall

ZONE 2 - More than 30 miles and less than 40 miles from the  
 respective City Hall

ZONE 3 - More than 40 miles and less than 50 miles from the  
 respective City Hall

ZONE 4 - More than 50 miles and less than 60 miles from the  
 respective City Hall

ZONE 5 - More than 60 miles and less than 70 miles from the  
 respective City Hall

ZONE 6 - More than 70 miles from the respective City Hall.

BASEPOINTS CITIES FOR CARPENTERS (EXCLUDING MILLWRIGHTS,  
 PILEDRIVERS AND DIVERS)

ALBANY	ASTORIA	BAKER
BEND	BROOKINGS	BURNS
COOS BAY	CORVALLIS	EUGENE

GOLDENDALE	GRANTS PASS	HERMISTON
HOOD RIVER	KLAMATH FALLS	LAGRANDE
LAKEVIEW	LONGVIEW	MADRAS
MEDFORD	McMINNVILLE	NEWPORT
OREGON CITY	ONTARIO	PENDLETON
PORTLAND	PORT ORFORD	REEDSPORT
ROSEBURG	SALEM	ST. HELENS
THE DALLES	TILLAMOOK	VANCOUVER

BASEPOINTS FOR MILLWRIGHTS

EUGENE	NORTH BEND	LONGVIEW
PORTLAND	MEDFORD	THE DALLES
VANCOUVER		

BASEPOINTS FOR PILEDRIVERS AND DIVERS

ASTORIA	BEND	COOS BAY
EUGENE	KLAMATH FALLS	LONGVIEW
MEDFORD	NEWPORT	PORTLAND
ROSEBURG	SALEM	THE DALLES

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ELEC0048F 01/01/2003

	Rates	Fringes
CLACKAMAS, CLATSOP, COLUMBIA, HOOD RIVER, MULTNOMAH, TILLAMOOK, WASCO, WASHINGTON, SHERMAN AND YAMHILL (NORTH) COUNTIES		
ELECTRICIANS	31.00	3%+11.83
CABLE SPLICERS	31.25	3%+11.83

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ELEC0112A 01/01/2002

	Rates	Fringes
BAKER, GILLIAM, GRANT, MORROW, UMATILLA, UNION, WALLOWA, AND WHEELER COUNTIES		
ELECTRICIANS	27.75	3%+8.63
CABLE SPLICERS	29.14	3%+8.63

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ELEC0125B 02/01/2002

	Rates	Fringes
LINE CONSTRUCTION		
CABLE SPLICER	35.44	3.875%+7.20
LINEMAN, POLE SPRAYER,		
HEAVY LINE EQUIPMENT MAN	31.96	3.875%+7.20
LINE EQUIPMENT MAN	27.91	3.875%+5.45
POWDERMAN, JACKHAMMERMAN	24.72	3.875%+5.45
GROUNDMAN	23.27	3.875%+5.45
TREE TRIMMER	22.46	3.875%+5.45

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ELEC0280C 01/01/2001

	Rates	Fringes
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BENTON, CROOK, DESCHUTES, JEFFERSON, LANE (EAST), LINN, MARION,  
POLK, AND YAMHILL (SOUTH) COUNTIES

ELECTRICIANS	29.00	3%+8.20
CABLE SPLICERS	31.90	3%+8.20

ELEC0291H 06/01/2002

	Rates	Fringes
MALHEUR COUNTY		
ELECTRICIANS	24.84	3%+6.59
CABLE SPLICERS	27.32	3%+6.59

ELEC0659F 01/01/2002

	Rates	Fringes
DOUGLAS (EAST OF A LINE RUNNING NORTH AND SOUTH FROM THE NE CORNER OF COOS COUNTY TO THE SE CORNER OF LINCOLN COUNTY), HARNEY, JACKSON, JOSEPHINE, KLAMATH AND LAKE COUNTIES		

ELECTRICIANS	27.03	9.31
CABLE SPLICERS	27.03	9.31

ELEC0932D 01/01/2002

	Rates	Fringes
COOS, CURRY, LINCOLN, DOUGLAS AND LANE COUNTIES (AREA LYING WEST OF A LINE NORTH AND SOUTH FROM THE N.E. CORNER OF COOS COUNTY TO THE S.E. CORNER OF LINCOLN COUNTY)		

ELECTRICIANS	27.00	3%+9.35
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ENGI0701F 07/01/2002

	Rates	Fringes
DREDGING:		

ZONE A		
LEVERMAN, HYDRAULIC	32.43	8.50
LEVERMAN, DIPPER,		
FLOATING CLAMSHELL	32.43	8.50
ASSISTANT ENGINEER	30.25	8.50
TENDERMAN	29.25	8.50
ASSISTANT MATE	26.58	8.50

ZONE B		
LEVERMAN, HYDRAULIC	34.43	8.50
LEVERMAN, DIPPER		
FLOATING CLAMSHELL	34.43	8.50
ASSISTANT ENGINEER	32.25	8.50
TENDERMAN	31.25	8.50
ASSISTANT MATE	28.58	8.50

ZONE C		
LEVERMAN, HYDRAULIC	35.43	8.50
LEVERMAN, DIPPER		



FLOATING CLAMSHELL	35.43	8.50
ASSISTANT ENGINEER	33.25	8.50
TENDERMAN	32.25	8.50
ASSISTANT MATE	29.58	8.50

ALL DREDGING JOBS OR PROJECTS PERFORMED IN COOS BAY/COOS RIVER  
SHALL RECEIVE ZONE A WAGES RATES

#### ZONE DESCRIPTION FOR DREDGING

ZONE A - All jobs or projects located within 30 road miles of  
Portland City Hall.

ZONE B - Over 30-50 road miles from Portland City Hall.

ZONE C - Over 50 road miles from Portland City Hall.

\*All jobs or projects shall be computed from the city hall by the  
shortest route to the geographical center of the project.

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ENGI0701G 01/01/2003

	Rates	Fringes
POWER EQUIPMENT OPERATORS (See Footnote C)		
ZONE 1:		
GROUP 1	29.30	8.95
GROUP 1A	30.77	8.95
GROUP 1B	32.23	8.95
GROUP 2	28.07	8.95
GROUP 3	27.31	8.95
GROUP 4	26.79	8.95
GROUP 5	26.19	8.95
GROUP 6	23.84	8.95

Zone Differential (add to Zone 1 rates):

Zone 2 - \$1.50

Zone 3 - 3.00

For the following metropolitan counties: MULTNOMAH; CLACKAMAS;  
MARION; WASHINGTON; YAMHILL; AND COLUMBIA; CLARK; AND COWLITZ  
COUNTY, WASHINGTON WITH MODIFICATIONS AS INDICATED:

All jobs or projects located in Multnomah, Clackamas and Marion  
Counties, West of the western boundary of Mt. Hood National  
Forest and West of Mile Post 30 on Interstate 84 and West of Mile  
Post 30 on State Highway 26 and West of Mile Post 30 on Highway  
22 and all jobs or projects located in Yamhill County, Washington  
County and Columbia County and all jobs or projects located in  
Clark & Cowlitz County, Washington except that portion of Cowlitz  
County in the Mt. St. Helens "Blast Zone" shall receive Zone I  
pay for all classifications.

All jobs or projects located in the area outside the identified  
boundary above, but less than 50 miles from the Portland City  
Hall shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the Portland  
City Hall, but outside the identified border above, shall receive  
Zone III pay for all classifications.

For the following cities: ALBANY; BEND; COOS BAY; EUGENE; GRANTS PASS; KLAMATH FALLS; MEDFORD; ROSEBURG

All jobs or projects located within 30 miles of the respective city hall of the above mentioned cities shall receive Zone I pay for all classifications.

All jobs or projects located more than 30 miles and less than 50 miles from the respective city hall of the above mentioned cities shall receive Zone II pay for all classifications.

All jobs or projects located more than 50 miles from the respective city hall of the above mentioned cities shall receive Zone III pay for all classifications.

#### POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: CONCRETE: Batch Plant and/or Wet Mix Operator, three units or more; CRANE: Helicopter Operator, when used in erecting work; Whirley Operator, 90 ton and over; LATTICE BOOM CRANE: Operator 200 tons through 299 tons, and/or over 200 feet boom; HYDRAULIC CRANE: Hydraulic Crane Operator 90 tons through 199 tons with luffing or tower attachments; FLOATING EQUIPMENT: Floating Crane, 150 ton but less than 250 ton

GROUP 1A: HYDRAULIC CRANE: Hydraulic Operator, 200 tons and over (with luffing or tower attachment); LATTICE BOOM CRANE: Operator, 200 tons through 299 tons, with over 200 feet boom; FLOATING EQUIPMENT: Floating Crane 250 ton and over

GROUP 1B: LATTICE BOOM CRANE: Operator, 300 tons through 399 tons with over 200 feet boom; Operator 400 tons and over; FLOATING EQUIPMENT: Floating Crane 350 ton and over

GROUP 2: ASPHALT: Asphalt Plant Operator (any type); Roto Mill, pavement profiler, operator, 6 foot lateral cut and over; BLADE: Auto Grader or "Trimmer" (Grade Checker required); Blade Operator, Robotic; BULLDOZERS: Bulldozer operator over 120,000 lbs and above; Bulldozer operator, twin engine; Bulldozer Operator, tandem, quadnine, D10, D11, and similar type; Bulldozere Robotic Equipment (any type); CONCRETE: Batch Plant and/or Wet Mix Operator, one and two drum; Automatic Concrete Slip Form Paver Operator; Concrete Canal Line Operator; Concrete Profiler, Diamond Head; CRANE: Cableway Operator, 25 tons and over; HYDRAULIC CRANE: Hydraulic crane operator 90 tons through 199 tons (with luffing or tower attachment); TOWER/WHIRLEY OPERATOR: Tower Crane Operator; Whirley Operator, under 90 tons; LATTICE BOOM CRANE: 90 through 199 tons and/or 150 to 200 feet boom; CRUSHER: Crusher Plant Operator; FLOATING EQUIPMENT: Floating Clamshell, etc.operator, 3 cu. yds. and over; Floating Crane (derrick barge) Operator, 30 tons but less than 150 tons; LOADERS: Loader operator, 120,000 lbs. and above; REMOTE CONTROL: Remote controlled earth-moving equipment; RUBBER-TIRED SCRAPERS: Rubber-tired scraper operator, with tandem scrapers, multi-engine;

SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Shovel, Dragline, Clamshell, operator 5 cu. yds and over; TRENCHING MACHINE: Wheel Excavator, under 750 cu. yds. per hour (Grade Oiler required); Canal Trimmer (Grade Oiler required); Wheel Excavator, over 750 cu. yds. per hour; Band Wagon (in conjunction with wheel excavator); UNDERWATER EQUIPMENT: Underwater Equipment Operator, remote or otherwise; HYDRAULIC HOES-EXCAVATOR: Excavator over 130,000 lbs.

GROUP 3: BULLDOZERS: Bulldozer operator, over 70,000 lbs. up to and including 120,000 lbs.; HYDRAULIC CRANE: Hydraulic crane operator, 50 tons through 89 tons (with luffing or tower attachment); LATTICE BOOM CRANES: Lattice Boom Crane-50 through 89 tons (and less than 150 feet boom); FORKLIFT: Rock Hound Operator; HYDRAULIC HOES-EXCAVATOR: excavator over 80,000 lbs. through 130,000 lbs.; LOADERS: Loader operator 60,000 and less than 120,000; RUBBER-TIRED SCRAPERS: Scraper Operator, with tandem scrapers; Self-loading, paddle wheel, auger type, finish and/or 2 or more units; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Shovel, Dragline, Clamshell operators 3 cu. yds. but less than 5 cu yds.

GROUP 4: ASPHALT: Screed Operator; Asphalt Paver operator (screeman required); BLADE: Blade operator; Blade operator, finish; Blade operator, externally controlled by electronic, mechanical hydraulic means; Blade operator, multi-engine; BULLDOZERS: Bulldozer Operator over 20,000 lbs and more than 100 horse up to 70,000 lbs; Drill Cat Operator; Side-boom Operator; Cable-Plow Operator (any type); CLEARING: Log Skidders; Chippers; Incinerator; Stump Splitter (loader mounted or similar type); Stump Grinder (loader mounted or similar type; Tub Grinder; Land Clearing Machine (Track mounted forestry mowing &

grinding machine); Hydro Axe (loader mounted or similar type); COMPACTORS SELF-PROPELLED: Compactor Operator, with blade; Compactor Operator, multi-engine; Compactor Operator, robotic; CONCRETE: Mixer Mobile Operator; Screed Operator; Concrete Cooling Machine Operator; Concrete Paving Road Mixer; Concrete Breaker; Reinforced Tank Banding Machine (K-17 or similar types); Laser Screed; CRANE: Chicago boom and similar types; Lift Slab Machine Operator; Boom type lifting device, 5 ton capacity or less; Hoist Operator, two (2) drum; Hoist Operator, three (3) or more drums; Derrick Operator, under 100 ton; Hoist Operator, stiff leg, guy derrick or similar type, 50 ton and over; Cableway Operator up to twenty (25) ton; Bridge Crane Operator, Locomotive, Gantry, Overhead; Cherry Picker or similar type crane hoist five (5) ton capacity or less; Hydraulic Crane Operator, under 50 tons; LATTICE BOOM CRANE OPERATOR: Lattice Boom Crane Operator, under 50 tons; CRUSHER: Generator Operator; Diesel-Electric Engineer; Grizzley Operator; DRILLING: Drill Doctor; Boring Machine Operator; Driller-Percussion, Diamond, Core, Cable, Rotary and similar type; Cat Drill (John Henry); Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Diesel-electric Engineer; Jack Operator, elevating barges, Barge Operator, self-unloading; Piledriver Operator (not crane type) (Deckhand required); Floating Clamshell, etc. Operator, under 3 cu. yds. (Fireman or Diesel-Electric Engineer

required); Floating Crane (derrick barge) Operator, less than 30 tons; GENERATORS: Generator Operator; Diesel-electric Engineer; GUARDRAIL EQUIPMENT: Guardrail Punch Operator (all types); Guardrail Auger Operator (all types); Combination Guardrail machines, i.e., punch auger, etc.; HEATING PLANT: Surface Heater and Planer Operator; HYDRAULIC HOES EXCAVATOR: Robotic Hydraulic backhoe operator, track and wheel type up to and including 20,000 lbs. with any or all attachments; Excavator Operator over 20,000 lbs through 80,000 lbs.; LOADERS: Belt Loaders, Kolman and Ko Cal types; Loaders Operator, front end and overhead, 25,000 lbs and less than 60,000 lbs; Elevating Grader Operator by Tractor operator, Sierra, Euclid or similar types; PILEDRIVERS: Hammer Operator; Piledriver Operator (not crane type); PIPELINE, SEWER WATER: Pipe Cleaning Machine Operator; Pipe Doping Machine Operator; Pipe Bending Machine Operator; Pipe Wrapping Machine Operator; Boring Machine Operator; Back Filling Machine Operator; REMOTE CONTROL: Concrete Cleaning Decontamination Machine Operator; Ultra High Pressure Water Jet Cutting Tool System Operator/Mechanic; Vacuum Blasting Machine Operator/mechanic; REPAIRMEN, HEAVY DUTY: Diesel Electric Engineer (Plant or Floating; Bolt Threading Machine operator; Drill Doctor (Bit Grinder); H.D. Mechanic; Machine Tool Operator; RUBBER-TIRED SCRAPERS: Rubber-tired Scraper Operator, single engine, single scraper; Self-loading, paddle wheel, auger type under 15 cu. yds.; Rubber-tired Scraper Operator, twin engine; Rubber-tired Scraper Operator, with push-pull attachments; Self Loading, paddle wheel, auger type 15 cu. yds. and over, single engine; Water pulls, water wagons; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER OPERATOR: Diesel Electric Engineer; Stationary Drag Scraper Operator; Shovel, Dragline, Clamshell, Operator under 3 cu yds.; Grade-all Operator; SURFACE (BASE) MATERIAL: Blade mounted spreaders, Ulrich and similar types; TRACTOR-RUBBERED TIRED:

Tractor operator, rubber-tired, over 50 hp flywheel; Tractor operator, with boom attachment; Rubber-tired dozers and pushers (Michigan, Cat, Hough type); Skip Loader, Drag Box; TRENCHING MACHINE: Trenching Machine operator, digging capacity over 3 ft depth; Back filling machine operator; TUNNEL: Mucking machine operator

GROUP 5: ASPHALT: Extrusion Machine Operator; Roller Operator (any asphalt mix); Asphalt Burner and Reconditioner Operator (any type); Roto-Mill, pavement profiler, ground man; BULLDOZERS: Bulldozer operator, 20,000 lbs. or less or 100 horse or less; COMPRESSORS: Compressor Operator (any power), over 1,250 cu. ft. total capacity; COMPACTORS: Compactor Operator, including vibratory; Wagner Pactor Operator or similar type (without blade); CONCRETE: Combination mixer and Compressor Operator, gunite work; Concrete Batch Plant Quality Control Operator; Belcrete Operator; Pumpcrete Operator (any type); Pavement Grinder and/or Grooving Machine Operator (riding type); Cement Pump Operator, Fuller-Kenyon and similar; Concrete Pump Operator; Grouting Machine Operator; Concrete mixer operator, single drum, under (5) bag capacity; Cast in place pipe laying machine; maginnis Internal Full slab vibrator operator; Concrete finishing machine operator, Clary, Johnson, Bidwell, Burgess Bridge deck or similar type; Curb Machine Operator, mechanical

Berm, Curb and/or Curb and Gutter; Concrete Joint Machine Operator; Concrete Planer Operator; Tower Mobile Operator; Power Jumbo Operator setting slip forms in tunnels; Slip Form Pumps, power driven hydraulic lifting device for concrete forms; Concrete Paving Machine Operator; Concrete Finishing Machine Operator; Concrete Spreader Operator; CRANE: Helicopter Hoist Operator; Hoist Operator, single drum; Elevator Operator; A-frame Truck Operator, Double drum; Boom Truck Operator; HYDRAULIC CRANE OPERATOR: Hydraulic Boom Truck, Pittman; DRILLING: Churn Drill and Earth Boring Machine Operator; Directional Drill Operator over 20,000 lbs pullback; FLOATING EQUIPMENT: Fireman; FORKLIFT: Lull Hi-Lift Operator or similar type; Fork Lift, over 5 ton and/or robotic; HYDRAULIC HOES EXCAVATORS: Hydraulic Backhoe Operator, wheel type (Ford, John Deere, Case type); Hydraulic Backhoe Operator track type up to and including 20,000 lbs.; LOADERS: Loaders, rubber-tired type, less than 25,000 lbs; Elevating Grader Operator, Tractor Towed requiring Operator or Grader; Elevating loader operator, Athey and similar types; OILERS: Service Oiler (Greaser); PIPELINE-SEWER WATER: Hydra hammer or simialr types; Pavement Breaker Operator; PUMPS: Pump Operator, more than 5 (any size); Pot Rammer Operator; RAILROAD EQUIPMENT: Locomotive Operator, under 40 tons; Ballast Regulator Operator; Ballast Tamper Multi-Purpose Operator; Track Liner Operator; Tie Spacer Operator; Shuttle Car Operator; Locomotive Operator, 40 tons and over; MATERIAL HAULRS: Cat wagon DJB's Volvo similar types; Conveyored material hauler; SURFACING (BASE) MATERIAL: Rock Spreaders, self-propelled; Pulva-mixer or similar types; Chiip Spreading machine operator; Lime spreading operator, construction job siter; SWEEPERS: Sweeper operator (Wayne type) self-propelled construction job site; TRACTOR-RUBBER TIRED: Tractor operator, rubber-tired, 50 hp flywheel and under; Trenching machine

operator, maximum digging capacity 3 ft depth; TUNNEL: Dinkey

GROUP 6: ASPHALT: Plant Oiler; Plant Fireman; Pugmill Operator (any type); Truck mounted asphalt spreader, with screed; COMPRESSORS: Compressor Operator (any power), under 1,250 cu. ft. total capacity; CONCRETE: Plant Oiler, Assistant Conveyor Operator; Conveyor Operator; Mixer Box Operator (C.T.B., dry batch, etc.); Cement Hog Operator; Concrete Saw Operator; Concrete Curing Machine Operator (riding type); Wire Mat or Brooming Machine Operator; CRANE: Oiler; Fireman, all equipment; Truck Crane Oiler Driver; A-frame Truck Operator, single drum; Tugger or Coffin Type Hoist Operator; CRUSHER: Crusher Oiler; Crusher Feeder; CRUSHER: Crusher oiler; Crusher feeder; DRILLING: Drill Tender; Auger Oiler; FLOATING EQUIPMENT: Deckhand; Boatman; FORKLIFT: Self-propelled Scaffolding Operator, construction job site (exclduing working platform); Fork Lift or Lumber Stacker Operator, construction job site; Ross Carrier Operator, construction job site; GUARDRAIL EQUIPMENT: Oiler; Auger Oiler; Oiler, combination guardrail machines; Guardrail Punch Oiler; HEATING PLANT: Temporary Heating Plant Operator; LOADERS: Bobcat, skid steer (less than 1 cu yd.); Bucket Elevator Loader Operator, BarberGreene and similar types; OILERS: Oiler; Guardrail Punch Oiler; Truck Crane Oiler-Driver; Auger Oiler; Grade Oiler, required to check grade; Grade

Checker; PIPELINE-SEWER WATER: Tar Pot Fireman; Tar Pot Fireman (power agitated); PUMPS: Pump Operator (any power); Hydrostatic Pump Operator; RAILROAD EQUIPMENT: Brakeman; Oiler; Switchman; Motorman; Ballast Jack Tamper Operator; SHOVEL, DRAGLINE, CLAMSHELL, SKOOPER, ETC. OPERATOR: Oiler, Grade Oiler (required to check grade); Grade Checker; Fireman; SWEEPER: Broom operator, self propelled, construction job site; SURFACING (BASE) MATERIAL: Roller Operator, grading of base rock (not asphalt); Tamping Machine operator, mechanical, self-propelled; Hydrographic Seeder Machine Operator; TRENCHING MACHINE: Oiler; Grade Oiler; TUNNEL: Conveyor operator; Air filtration equipment operator

FOOTNOTE C: HANDLING OF HAZARDOUS WAST MATERIALS - Personnel in all craft classifications subject to working inside a federally designated Hazardous Waste perimeter shall be eligible for compensation in accordance with the following group schedule relative to the level of Hazardous Waste as outline in the specific Hazardous Waste Project Site Safety Plan:

- H-1 Base Wage Rate when on a hazardous waste site when not outfitted with protective clothing.
- H-2 Class "C" Suit - Basic hourly wage rate plus \$1.00 per hour, fringes plus \$0.15.
- H-3 Class "B" Suit - Basic hourly wage rate plus \$1.50 per hour, fringes plus \$0.15.
- H-4 Class "A" Suit -Basic hourly wage rate plus \$2.00 per hour, fringes plus \$0.15.

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IRON0029K 07/01/2002		
	Rates	Fringes
IRONWORKERS	26.97	11.80

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LAB00001M 06/01/2002		
	Rates	Fringes
MASON TENDERS/HOD CARRIERS: Tenders to Bricklayers, Tile Setters, Marble Setters and Terrazzo Workers, Topping for Cement Finishers and Mortar Mixers	23.79	7.40

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LAB00003F 06/01/2002		
	Rates	Fringes
ZONE 1: LABORERS (SEE FOOTNOTE C)		
GROUP 1	22.18	7.45
GROUP 2	22.69	7.45
GROUP 3	23.08	7.45
GROUP 4	23.41	7.45
GROUP 5	19.61	7.45

Zone Differential (Add to Zone 1 rates):  
 Zone 2 - \$0.65  
 Zone 3 - 1.15

Zone 4 - 1.70  
Zone 5 - 2.75

ZONE 1 - All jobs or projects located within 30 miles of the respective City Hall  
ZONE 2 - More than 30 miles and less than 40 miles from the respective City Hall  
ZONE 3 - More than 40 miles and less than 50 miles from the respective City Hall  
ZONE 4 - More than 50 miles and less than 80 miles from the respective City Hall  
ZONE 5 - More than 80 miles from the respective City Hall.

BASEPOINTS:

ALBANY	ASTORIA	BAKER CITY
BEND	BURNS	COOS BAY
EUGENE	GRANTS PASS	HERMISTON
KLAMATH FALLS	MEDFORD	PENDLETON
PORTLAND	ROSEBURG	SALEM
THE DALLES		

LABORER CLASSIFICATIONS

GROUP 1: Asphalt Spreaders; Asphalt Plant Laborers; Batch Weighman; Broomers; Brush Burners and Cutters; Car and Truck Loaders; Carpenter Tender; Change-House Man or Dry Shack Man; Choke Setter; Cleanup Laborers; Curing, Concrete; Demolition, Wrecking, and Moving Laborers; Dumpers, road oiling crew; Dumpmen (for grading crew); Elevator Feeders; Fine Graders; Fence Builders; Form Strippers (not swinging stages); Guard Rail, Median Rail, Guide Post; Reference Post, Right-of-way Marker;

Hazardous Waste Laborers; Landscaping or Planting Laborer; Leverman or Aggregate Spreader (Flaherty and similar types); Loading Spotters; Material Yard Man (including electrical); Pittsburgh Chipper Operator or similar types; Railroad Track Laborers; Ribbon Setters (including steel forms); Rip Rap Man (hand placed); Road Pump Tender; Sewer Labor; Signalman; Skipman; Slopers; Spraymen; Stake Chaser; Stockpiler; Tie Back Shoring; Timber Faller and Bucker (hand labor); Toolroom Man (at jobsite); Weight-Man-Crusher (aggregate when used)

GROUP 2: Applicator (including Pot Tender for same), applying protective material by hand or nozzle on utility lines or storage tanks on project; Brush Cutters (power saw); Burners; Choker Splicer; Clary Power Spreader and similar types; Clean-up Nozzleman-Green-Cutter (concrete, rock, etc.); Concrete Laborer; Concrete Power Buggyman; Crusher Feeder; Demolition and Wrecking Charred Materials; Dropping and Wrapping Pipe; Guniting Nozzleman Tender; Guniting or Sand Blasting Pot Tender; Handlers or Mixers of all materials of an irritating nature (including cement and lime); Post Hole Diggers, Air, Gas or Electric; Sand Blasting (wet); Tampers; Tool Operators (includes but not limited to: Dry Pack Machine, Jackhammer, Chipping Guns, Paving Breakers)

GROUP 3: Asbestos removal (structural removal only); Bit

Grinder; Concrete Saw Operator; Drill Doctor; Drill Operators (Air Tracks, Cat Drills, Wagon Drills, Rubber-mounted Drills, and other similar types, including at crusher plants); Manhole Builder; Nippers and Timbermen; Power Saw Operators (bucking and falling); Sand Blasting (dry); Sewer Timberman; Track Liners, Anchor Machines, Ballast Regulators, Multiple Tampers, Power Jacks; Tugger Operator; Vibrator-all types; Vibrating Screed; Water Blaster

GROUP 4: Asphalt Rakers; Concrete Nozzleman; Grade Checker; Gunite Nozzleman; High Scalers, Strippers and Drillers (covers work in swinging stages, chairs or belts, under extreme conditions unusual to normal drilling, blasting, barring-down, or sloping and stripping); Pipe Layers-All types; Powdermen; Pumpcrete Nozzlemen; Loop Installation; Tunnel-miner; Tunner-powderman; Motorman-Dinky Locomotive; Shield Operator; Tunnel Bullgang (above ground); Tunnel Chuck Tenders; Tunnel-Muckers, Brakemen, Concrete Crew, Bull Gang (underground)

GROUP 5: Traffic Flaggers

FOOTNOTE C: HANDLING OF HAZARDOUS WAST MATERIALS - Personnel in all craft classifications subject to working inside a federally designated Hazardous Waste perimeter shall be eligible for compensation in accordance with the following group schedule relative to the level of Hazardous Waste as outline in the specific Hazardous Waste Project Site Safety Plan:

H-1 Base Wage Rate when on a hazardous waste site when not outfitted with protective clothing.

H-2 Class "C" Suit - Basic hourly wage rate plus \$1.00 per hour, fringes plus \$0.15.

H-3 Class "B" Suit - Basic hourly wage rate plus \$1.50 per hour, fringes plus \$0.15.

H-4 Class "A" Suit -Basic hourly wage rate plus \$2.00 per hour, fringes plus \$0.15.

\* PAIN0055I 07/01/2002

Rates Fringes  
CLACKAMAS, CLATSOP, COLUMBIA, GILLIAM, HOOD RIVER, MARION,  
MORROW, MULTNOMAH, POLK, TILLAMOOK, SHERMAN, UMATILLA, UNION,  
WALLOWA, WASCO, WASHINGTON AND YAMHILL COUNTIES

# COMMERCIAL WORK:

## PAINTERS:

Painters	17.35	5.08
High work-All work		
60 feet or higher	18.10	5.08

# INDUSTRIAL WORK:

## PAINTERS:

Brush & Roller	17.95	5.08
Spray, Sandblasting	18.55	5.08
High work-All work		
60 feet or higher	18.70	5.08



BAKER, BENTON, CROOK, DESCHUTES, GRANT, HARNEY, JEFFERSON, LAKE,  
LANE, LINN, LINCOLN, MALHEUR AND WHEELER COUNTIES

COMMERCIAL WORK:

PAINTERS:

Painters	16.35	5.08
High work-All work 60 feet or higher	17.10	5.08

INDUSTRIAL WORK

PAINTERS:

Brush & Roller	16.95	5.08
Spray, Sandblasting	17.55	5.08
High work-All work over 60 feet or higher	17.70	5.08

COOS, CURRY, DOUGLAS, JACKSON, JOSEPHINE AND KLAMATH COUNTIES

COMMERCIAL WORK:

PAINTERS:

Painters	14.35	5.08
High work-All work 60 feet or higher	15.10	5.08

INDUSTRIAL WORK:

PAINTERS:

Brush & Roller	14.95	5.08
Spray, Sandblasting	15.55	5.08
High work-All work 60 feet or higher	15.70	5.08

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PAIN0055J 06/01/2002

	Rates	Fringes
PAINTERS:		
HIGHWAY & PARKING LOT STRIPER	23.36	5.75

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PLAS0555A 06/01/2002

	Rates	Fringes
CEMENT MASONS:		
ZONE 1:		
CEMENT MASONS	24.24	9.70
COMPOSITION WORKERS AND POWER MACHINERY OPERATORS	24.68	9.70
CEMENT MASONS ON SUSPENDED, SWINGING AND/OR HANGING SCAFFOLD	24.68	9.70
CEMENT MASONS DOING BOTH COMPOSITION/POWER MACHINERY AND SUSPENDED/HANGING SCAFFOLD	25.13	9.70

Zone Differential (Add To Zone 1 Rates):

Zone 2 - \$0.65  
Zone 3 - 1.15  
Zone 4 - 1.70  
Zone 5 - 3.00

BASE POINTS: BEND, CORVALLIS, EUGENE, LONGVIEW, MEDFORD,  
PORTLAND, SALEM, THE DALLES, VANCOUVER

ZONE 1: Projects within 30 miles of the respective city hall

ZONE 2: More than 30 miles but less than 40 miles from the  
respective city hall.

ZONE 3: More than 40 miles but less than 50 miles from the  
respective city hall.

ZONE 4: More than 50 miles but less than 80 miles from the  
respective city hall.

ZONE 5: More than 80 miles from the respective city hall

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PLUM0290M 04/01/2002

	Rates	Fringes
BENTON, CLACKAMAS, CLATSOP, COLUMBIA, COOS, CROOK, CURRY, DESCHUTES, DOUGLAS, GILLIAM, GRANT AND HARNEY (those portions which lies north and west of a north-south line drawn from the town of John Day to a point five miles east of the town of Burns and three miles south of Burns thence on an airline through the town of Wagontire west to the County lines), HOOD RIVER, JACKSON, JEFFERSON, JOSEPHINE, KLAMATH, LAKE, LANE, LINCOLN, LINN, MARION, MULTNOMAH, POLK, SHERMAN, TILLAMOOK, WASCO, WASHINGTON, WHEELER AND YAMHILL COUNTIES		

PLUMBERS AND PIPEFITTERS	31.31	12.12
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PLUM0296D 06/01/2002

	Rates	Fringes
BAKER, HARNEY (Remainder of County) AND MALHEUR COUNTIES		

PLUMBERS AND PIPEFITTERS	23.54	8.02
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PLUM0598H 06/01/2002

	Rates	Fringes
GRANT (Remainder of County), MORROW, UMATILLA, UNION AND WALLOWA COUNTIES		

PLUMBERS AND PIPEFITTERS	29.85	12.59
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SUOR2001B 04/01/1991

	Rates	Fringes
TIMBER SALES ROADS:		
OPERATING ENGINEERS	10.37	4.15
TEAMSTERS	9.74	3.74
LABORERS	8.35	4.30
POWER SAW, DRILLER, POWDERMAN	9.12	4.30

-----  
TEAM0037E 06/01/2002

	Rates	Fringes
TRUCK DRIVERS (See Footnote C):		
ZONE 1:		
GROUP 1	23.65	8.45
GROUP 2	23.77	8.45
GROUP 3	23.90	8.45
GROUP 4	24.16	8.45
GROUP 5	24.38	8.45
GROUP 6	24.54	8.45
GROUP 7	24.74	8.45

Zone Differential (add to Zone 1 rates):

Zone 2 - \$0.65  
Zone 3 - 1.15  
Zone 4 - 1.70  
Zone 5 - 2.75

Zone 1 - All jobs or projects located within 30 miles of the  
respective City Hall  
Zone 2 - More than 30 miles and less than 40 miles from the  
respective City Hall  
Zone 3 - More than 40 miles and less than 50 miles from the  
respective City Hall  
Zone 4 - More than 50 miles and less than 80 miles from the  
respective City Hall  
Zone 5 - More than 80 miles from the respective City Hall

BASEPOINTS:

ALBANY	ASTORIA	BAKER
BEND	BROOKINGS	BURNS
COOS BAY	CORVALLIS	EUGENE
GOLDENDALE	GRANTS PASS	HERMISTON
HOOD RIVER	KLAMATH FALLS	LAGRANDE
LAKEVIEW	LONGVIEW	MADRAS
MEDFORD	MCMINNVILLE	OREGON CITY
NEWPORT	ONTARIO	PENDLETON
PORTLAND	PORT ORFORD	REEDSPORT
ROSEBURG	SALEM	THE DALLES
TILLAMOOK	VANCOUVER	

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: A-frame or hydra-lift truck w/load bearing surface;  
Articulated dump truck; Battery rebuilders; Bus or manhaul  
driver; Concrete buggies (power operated); Concrete pump truck;  
Dump trucks, side, end and bottom dumps, including semi-trucks  
and trains or combinations thereof: up to and including 10 cu.  
yds.; Lift jitneys, fork lifts (all sizes in loading, unloading  
and transporting material on job site); Loader and/or leverman on  
concrete dry batch plant (manually operated); Lubrication man,  
fuel truck driver, tireman, wash rack, steam cleaner or  
combination; Pilot car; Pickup truck; Slurry truck  
driver or leverman; Solo flat bed and misc. body truck, 0-10

tons; Team drivers; Tireman; Transit mix and wet or dry mix trucks: 5 cu yds. and under; Water wagons (rated capacity) up to 3,000 gallons

GROUP 2: Boom truck/hydralift or retracting crane; Challenger; Dumpsters or similar equipment-all sizes; Dump trucks/articulated dump 6 cu to 10 cu.; Flaherty spreader driver or leverman; Low bed equipment, flat bed semi-truck and trailer or doubles transporting equipment or wet or dry materials; Lumber carrier, driver-straddle carrier (used in loading, unloading and transporting of materials on job site); Oil distributor driver or leverman; Transit mix and wet or dry mix trucks: over 5 cy yds and including 7 cu. yds; Vacuum trucks; Water Wagons (rated capacity) over 3,000 to 5,000 gallons

GROUP 3: Ammonia nitrate distributor driver; Dump trucks, side, end and bottom dumps, including semi-trucks and trains or combinations thereof: over 10 cu. yds. and including 30 cu. yds., includes articulated dump trucks; self propelled street sweeper; Transit mix and wet or dry mix trucks, over 7 cu. yds. and including 11 cu. yds.; truck mechanic-Welder-Body repairman; Utility and cleanup truck; Water wagons (rated capacity) 5,000 to 10,000 gallons.

GROUP 4: Asphalt Bruner; Dump trucks, side, end and bottom dumps, including semi-trucks and trains or combinations thereof: over 30 cu. yds. and including 50 cu. yds. includes articulated dump trucks; Fire guard; Transit Mix and Wet or Dry Mix Trucks, over 11 cu. yds. and including 15 cu. yds.; Water Wagon (rated capacity) over 10,000 gallons to 15,000 gallons

GROUP 5: Dump trucks, side, end and bottom dumps, including semi-trucks and trains or combinations thereof: over 50 cu. yds. and including 60 cu. yds., includes articulated dump trucks

GROUP 6: Bulk cement spreader w/o auger; Dry pre batch concrete mix trucks; Dump trucks, side, end and bottom dumps, including semi-trucks and trains of combinations thereof: over 60 cu. yds. and including 80 cu. yds. and includes articulated dump trucks; Skid truck

GROUP 7: Dump trucks, side, end and bottom dumps, including semi-trucks and trains or combinations thereof: over 80 cu. yds. and including 100 cu. yds. includes articulated dump trucks; Industrial lift truck (mechanical tailgate)

FOOTNOTE C: HANDLING OF HAZARDOUS WAST MATERIALS -(LABORERS, POWER EQUIPMENT OPERATORS, AND TRUCK DRIVERS): Personnel in all craft classifications subject to working inside a federally designated Hazardous Waste perimeter shall be eligible for compensation in accordance with the following group schedule relative to the level of Hazardous Waste as outline in the specific Hazardous Waste Project Site Safety Plan:

H-1 Base Wage Rate when on a hazardous waste site when not outfitted with protective clothing.

H-2 Class "C" Suit - Basic hourly wage rate plus \$1.00 per

hour, fringes plus \$0.15.  
H-3 Class "B" Suit - Basic hourly wage rate plus \$1.50 per  
hour, fringes plus \$0.15.  
H-4 Class "A" Suit -Basic hourly wage rate plus \$2.00 per  
hour, fringes plus \$0.15.

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WELDERS - Receive rate prescribed for craft performing operation  
to which welding is incidental.

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Unlisted classifications needed for work not included within  
the scope of the classifications listed may be added after  
award only as provided in the labor standards contract clauses  
(29 CFR 5.5(a)(1)(ii)).

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In the listing above, the "SU" designation means that rates  
listed under that identifier do not reflect collectively  
bargained wage and fringe benefit rates. Other designations  
indicate unions whose rates have been determined to be  
prevailing.

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can  
be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a  
position on a wage determination matter
- \* a conformance (additional classification and rate)  
ruling

On survey related matters, initial contact, including requests  
for summaries of surveys, should be with the Wage and Hour  
Regional Office for the area in which the survey was conducted  
because those Regional Offices have responsibility for the  
Davis-Bacon survey program. If the response from this initial  
contact is not satisfactory, then the process described in 2.)  
and 3.) should be followed.

With regard to any other matter not yet ripe for the formal  
process described here, initial contact should be with the Branch  
of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an  
interested party (those affected by the action) can request  
review and reconsideration from the Wage and Hour Administrator  
(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.  
END OF GENERAL DECISION

**TABLE OF CONTENTS**  
**TECHNICAL SPECIFICATIONS**

**SECTION NO.**      **SECTION TITLE**

**DIVISION 1 – GENERAL CONDITIONS**

01000	Abbreviations and Acronyms
01110	Summary of Work
01115	Site Description
01140	Supplementary Requirements
01145	Site-Specific Supplementary Requirements
01240	Cost and Performance Report
01250	Modification Procedures
01270	Measurement and Payment
01312	Quality Control System (QCS)
01320	Project Schedule
01330	Submittal Procedures
01351	Safety, Health, and Emergency Response (HTRW)
01400	Remedial Action Management Plan
01410	Environmental Protection
01451	Contractor Quality Control
01500	Temporary Construction Facilities
01560	Care and Diversion of Water
01720	Field Engineering
01780	Record Drawings
01785	Warranty of Construction
01787	Equipment-In-Place List
01788	Maintenance and Project Closeout

**DIVISION 2 – SITE WORK**

02120	Transportation and Disposal of Waste Materials
02145	Temporary LNAPL Storage Tanks
02230	Clearing and Grubbing
02241	Base Course
02300	Earthwork
02316	Excavation, Trenching, and Backfilling for Utilities Systems
02317	LNAPL Collection Trench
02373	Separation/Filtration Geotextile
02379	LNAPL Containment Geomembrane
02510	Water Supply Line
02679	Well Abandonment and Protection

<b><u>SECTION NO.</u></b>	<b><u>SECTION TITLE</u></b>
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DIVISION 2 – SITE WORK (Cont.)

02821	Fencing
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DIVISION 3 – CONCRETE

03307	Concrete for Minor Structures
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DIVISION 13 – SPECIALTY

13122	Pre-Engineered Compressor Building
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DIVISION 15 – MECHANICAL

15100	LNAPL Collection and Storage System
15210	Air Supply System

DIVISION 16 – ELECTRICAL

16375	Electrical Distribution System, Underground
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## SECTION 01000

### ABBREVIATIONS AND ACRONYMS

AALA	American Association of Laboratory Accreditation
AASHTO	American Association of State Highway and Transportation Officials
ABIH	American Board of Industrial Hygiene
AC	alternating current
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	ACI International
AEIC	Association of Edison Illuminating Companies
AGC	Associated General Contractors
AMRL	AASHTO Materials Reference Laboratory
ANSI	American National Standards Institute
API	American Petroleum Institute
APP	Accident Prevention Plan
ARARS	applicable or appropriate and relevant requirements
ASSE	American Society of Sanitary Engineering
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
bgs	below ground surface
C	Celsius
CCRL	Concrete and Cement Reference Laboratory
CEE	Clean Environmental Equipment
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
cm	centimeter
CO	Contracting Officer
CQC	Contractor Quality Control
CRZ	Contamination Reduction Zone
cSt	centistokes
DR	Dimension Ratio
EPA	U.S. Environmental Protection Agency
ESC	erosion and sediment control
EZ	Exclusion Zone
F	Fahrenheit
FCCCHR	Foundation for Cross-Connection Control and Hydraulic Research
FIO	for information only
FM	Factory Mutual Engineering and Research
GA	Government Approval
gpd	gallon per day
gph	gram per hour
g/m <sup>2</sup>	gram per square meter
GRI	Geosynthetic Research Institute

HDPE	high-density polyethylene
hp	horsepower
HTRW	hazardous, toxic and radiological waste
Hz	hertz
ID	inside diameter
IEEE	Institute of Electrical and Electronics Engineers
kg	kilogram
kg/m <sup>2</sup>	kilogram per meter squared
kPa	kilo-Pascal
lb	pound
LNAPL	light non-aqueous phase liquid
m	meter
MARV	minimum average roll value
MB	megabyte
mL/s	milliliter per second
mm	millimeter
MPa	mega-Pascal
mph	mile per hour
MLLW	mean lower low water
MQC	Manufacturing Quality Control
MSS	Manufacturers Standardization Society
MTC	Materials Testing Center
NAPHCC	National Association of Plumbing-Heating-Cooling Contractors
NAS	Network Analysis System
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NPS	nominal pipe size
NPT	National Pipe Thread
NTP	notice to proceed
O&M	operation and maintenance
OAR	Oregon Administrative Rule
ODEQ	Oregon Department of Environmental Quality
OPA	Oil Pollution Act
OR-OSHA	Oregon Occupational Safety and Health Administration
ORS	Oregon Revised Statutes
OSHA	Occupational Safety and Health Administration
oz/ft <sup>2</sup>	ounce per square foot
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PE	polyethylene
PPE	personal protective equipment
ppm	part per million
psi	pound per square inch
psig	pound per square inch gauge

PTFE	polytetrafluoroethylene
PVC	polyvinyl chloride
QAR	Quality Assurance Representative
QC	quality control
RAMP	Remedial Action Management Plan
RCRA	Resource Conservation and Recovery Act
RSPA	Research and Special Programs Administration
scfm	standard cubic feet per minute
SD	Submittal Data
SDR	standard dimension ratio
Site	Tongue Point Landfill Site
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SSU	saybolt second universal
STI	Steel Tank Institute
SZ	support zone
TDC	Transportation and Disposal Coordinator
TDFT	total dry-film thickness
TFSO	tank full shut off
TSCA	Toxic Substances Control Act
UBC	Uniform Building Code
UFC	Uniform Fire Code
UL	Underwriters Laboratories
USACE	U.S. Army Corps of Engineers
UV	ultraviolet
V	volt
VOCs	volatile organic compounds

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## **SECTION 01110**

### **SUMMARY OF WORK**

#### **PART 1 GENERAL**

##### **1.1 SUMMARY**

This section provides a summary of the various contract work elements and their relationship to each other. This summary does not provide the technical detail of the referenced sections for the particular work activities, but describes the work as a whole, providing overall perspective to the separate tasks and their interrelationships. Background on site conditions and previous investigations is also included. This section shall be used in conjunction with all the other sections and the Drawings to establish the total work requirements.

##### **1.1.1 Work Covered by the Contract Documents**

Contractor is advised that the contract work will consist of remedial action at the Tongue Point landfill site (Site) located in Clatsop County approximately 3 miles (4.8 kilometers) east of Astoria, Oregon. The remedial action will be conducted under the purview of Department of Defense's Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). All applicable Federal, State, and local regulations shall be adhered to by the Contractor.

##### **1.1.2 Work Required in the Contract**

- a. Preparing and implementing a Remedial Action Management Plan (RAMP), which consists of a series of individual work plans.
- b. Site preparatory work, including: clearing and grubbing, removing portions of an existing rock revetment, fence removal and relocation, temporary erosion and sediment control measures, and developing staging areas.
- c. Developing access/haul roads.
- d. Providing traffic control.
- e. Abandoning and protecting monitoring wells.
- f. Installing utilities, including water, electricity, and telephone.

- g. Installing three new bench marks and references on-site, setting up a local survey grid, initial site survey prior to site preparation, survey after subgrade preparation, settlement plates, and survey after preloading.
- h. Preparing the landfill surface for preloading described from bottom to top as follows: regrading of the existing landfill surface, followed by incorporating chipped and waste material from clearing and grubbing and other site activities into the landfill construction of the light non-aqueous phase liquid (LNAPL) collection trench, followed by placement of a thin layer of clean, imported soil over the landfill surface.
- i. Installing a temporary LNAPL collection and storage system, including trench, collection piping, geomembrane, trench backfill, and LNAPL collection sumps with skimmer pumps, controls, LNAPL storage tank, stabilized aggregate base course storage tank pad, concrete equipment pad, and pre-engineered compressor building.
- j. Placing a separation geotextile prior to placement of each preload sequence to delineate the subgrade soil from the soil used for preload.
- k. Preloading of the landfill site conducted in five sequential sections from 40 to 60 days per section using imported fill, as approved by the Contracting Officer (CO).
- l. Operation and maintenance for the duration of construction and a period following construction, including stormwater and sediment control, operation and maintenance of the temporary LNAPL collection and storage system, maintenance of the boom for the control of LNAPL release, and disposal of collected LNAPL. Monitoring of wells, LNAPL in monitoring wells, and settlement plate elevations will be conducted by the CO or by others under a separate contract.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 PART 3 EXECUTION (NOT USED)**

### **END OF SECTION**

## **SECTION 01115**

### **SITE DESCRIPTION**

#### **PART 1 GENERAL**

##### **1.1 SUMMARY**

This section provides background on the location, physical setting, history, soil characteristics, and the nature and extent of soil contamination at the Tongue Point Landfill site (Site). Selected results of chemical and physical laboratory analyses conducted on soils during the Site investigation phases are summarized in this section. The Contractor is encouraged to refer to additional information referenced in this section and contained in the document repository for the Site indicated in paragraph 1.8.2 Summary of Site Contamination that may assist in bidding this project. No warranties or guarantees are made regarding the completeness or the accuracy of information provided in this section or the documents contained in the repository.

##### **1.2 PROJECT LOCATION**

The Drawings contain a vicinity map for the Site. Tongue Point encompasses approximately 840 acres on a peninsula on the south shore of the Columbia River estuary approximately 3 miles (4.8 kilometers) east of Astoria, Oregon. The peninsula was created by hydrofilling Tongue Neck, a tidal isthmus connecting the river shore to a small offshore island. The main channel of the Columbia River is north and west of the Site. Cathlamet Bay is located on the east and south sides of the Site. The Site encompasses approximately 3 acres (1.2 hectares [ha]) and is located in the NE 1/4 of Section 11, Township 8 North, Range 9 West, in Clatsop County, Oregon.

##### **1.3 SITE ACCESS**

Site access is through the gate shown on the Drawings from the North Tongue Point Road. In addition, access to the landfill is controlled at the interior access road shown on the Drawings.

##### **1.4 SITE LAYOUT AND EXISTING STRUCTURES**

Site layout and the location of existing features within or adjacent to the project Site is provided in the Drawings.

##### **1.5 TOPOGRAPHY AND SURFACE WATER DRAINAGE**

The Site occupies approximately 3 acres (1.2 ha) at the southern end of Tongue Point. The Site is relatively flat with elevations from 18 to 23 feet (5.5 to 7.0 meters) above mean lower low water (MLLW) except around the perimeter, where elevations drop near the shoreline. As shown on the Drawings, the Site is bounded on the east by Cathlamet Bay, on the south by Cathlamet Bay and

Mill Creek, on the west by the Burlington Northern Railroad, and on the north-northwest by the former athletic field. A chain-link fence forms the boundary between the Site and the former athletic field. The Site is presently covered with grasses, shrubs, and blackberry vines. Bushes and small trees are present near the shoreline.

Tongue Point is located on the northwest shore of Mott Basin, approximately 12 miles (19 kilometers) upstream of the mouth of the Columbia River. Mott Basin is located at the western edge of Cathlamet Bay, a slackwater area of the Columbia River estuary.

The Columbia River is tidally influenced in the vicinity of the Site. Tidal information is available from a National Oceanic and Atmospheric Administration (NOAA) gauge at the U.S. Coast Guard Station located on Tongue Point. The mean tide range (i.e., the difference between the mean high and the mean low tides) is approximately 6.6 feet (2.0 meters) (1974–1992) (Shapiro 1993). The average diurnal range (i.e., the difference between a day's highest high and lowest low tides) is 8.4 feet (2.6 meters).

In addition to the Columbia River, there are two other significant surface water features in the Site vicinity. Mill Creek enters Cathlamet Bay south of the Site. The John Day River enters Cathlamet Bay approximately 1.5 miles (2.4 kilometers) southeast of the Site.

Most of the Tongue Point Site adjacent to the finger piers is paved. Available drawings indicate that runoff from the central portion of the paved area was collected in stormwater inlets that were tied into the discharge line from the wastewater treatment plant. The drawings show that the combined stormwater and sanitary wastewater was discharged at an outfall near Pier 3. The wastewater treatment plant closed in the 1960s, and it is not known whether the sanitary sewer discharge lines still exist.

Runoff from the southern portion of the paved area was collected and conveyed to an outfall near Pier 1. Runoff from the northern portion of the paved area may have drained to an outfall near Pier 7, although the available map is vague. Neither of these storm outfalls has been field-verified.

Runoff from the unpaved area south of Pier 1, which encompasses the Site and the old athletic field, reaches Cathlamet Bay directly via sheetflow or indirectly via an unlined ditch that runs along the railroad tracks southwest of the Site. This ditch discharges into Cathlamet Bay immediately south of the Site.

## 1.6 GEOLOGIC SETTING

The Site is underlain by approximately 3 to 20 feet (0.91 to 6.1 meters) of layered fill material that consists of wood, gravel, sand, organic material, and debris such as metal, glass, and brick fragments. The upland or non-sediment portion of the Tongue Point area adjacent to the finger piers was created by hydraulic placement of sediment dredged from offshore areas (i.e., hydrofill). This hydrofill consists primarily of brown and gray fine to medium sand with silt and mica flakes. It



ranges from approximately 4 to 20 feet (1.2 to 6.1 meters) thick, with an average thickness of about 11 feet (3.4 meters). The elevation of the base of the hydrofill is approximately between +7 and -6 feet (+2.1 and -1.8 meters) MLLW. The hydrofill material is present predominantly north of the Site, but also is present beneath the north portion of the Site and appears to taper out toward the south.

Alluvial deposits of approximately 15 to 45 feet (4.6 to 13.7 meters) thick underlie the hydrofill. These deposits consist of gray to olive-brown, layered, fine silty sand, sandy silt, organic materials, and occasional gravel. The upper approximate 1 to 4 feet (0.3 to 1.2 meters) of the alluvium generally consists of organic silt, which appears to reflect the original (i.e., prior to hydrofilling) surface of Cathlamet Bay. The alluvial deposits appear to be thickest toward the Columbia River and thinnest where the underlying siltstone unit was encountered at higher elevations to the north and west.

Marine-deposited siltstone of the Astoria Formation underlies the alluvial deposits at Tongue Point. The siltstone is pale gray to white, soft to medium hard and breaks apart with finger pressure into angular fragments in a silt matrix.

The Site contains waste debris such as buried drums, car engines and frames, large appliances, dinner plates and cups, wire, glass, bricks, and wood. Debris extends into the nearshore sediment area. Approximately the upper 5 feet (1.5 meters) of the Site consists of wood chips and mulch intermixed with waste materials.

Grain size analysis of sediment cores collected near Piers 4 and 5 indicate that the uppermost sediments are primarily composed of fine sands, silts, and clays in varying proportions. Some coarse sand and fine pebble gravel (> 2 mm) also were encountered. The native material encountered at the bottom of these sediment cores at approximately 20 feet (6.1 meters) below MLLW was “consolidated clay.” This “clay” may equate to the Astoria Formation siltstone identified by Shapiro and Associates in 1993. Representative soil boring logs are presented in Appendix 01115-A.

Consolidated, fine-grained materials were encountered in sediment borings made prior to construction of the finger piers in 1946. These materials, termed “hard clay” or “soapstone” in the boring logs, were found at approximately 36 feet to 46 feet (11.0 to 14.0 meters) below MLLW in borings located in Cathlamet Bay approximately 150 feet (45.7 meters) east of the edge of the hydrofilled area. In sediment borings located about 300 feet (91.4 meters) east of the edge of the hydrofilled area, the consolidated materials were encountered at depths of approximately 61 to 71 feet (18.6 to 21.6 meters) below MLLW. These materials probably correlate with the Astoria Formation siltstone.

## 1.7 SITE HISTORY

In 1921, a submarine and destroyer base was established on the small island of Tongue Point. In 1939, construction of the Tongue Point Naval Air Station (NAS) was initiated in order to serve as a seaplane base. Between 1939 and 1941, the subtidal lands south of Tongue Point Island were hydraulically filled with sediment from offshore dredging operations. Thus, Tongue Point became a peninsula.

Seaplane hangars and fueling, repair, and maintenance facilities were constructed on the hydrofilled portion of the NAS. To meet the needs of the base population, living quarters, an athletic field, a medical dispensary, a powerhouse, a sewage treatment plant, a fire training area, an older clay-lined burn pit and a newer sludge burning tank, pipelines, tanks, and a waste incinerator were built on the hydrofilled and upland portions of the Site. Construction debris and other solid wastes generated at the NAS were disposed of at the landfill, which was constructed on hydrofilled land. However, it may have been in use as early as 1941, when the NAS was constructed.

In 1946, the NAS became a reserve fleet facility for the Columbia River Group of the Pacific Reserve Fleet. To accommodate the reserve fleet, the river was dredged and eight concrete finger piers were constructed. Activities at the base included ship deactivation, preservation of deactivated ships, and ship overhauls. Waste oil and diesel fuel, as well as sludge removed from mothballed ships, were reportedly burned in an older pit or newer tank located within the landfill.

The Tongue Point NAS was deactivated by the Navy in 1962, and the property was transferred to the General Services Administration for disposal. Later that year, the Job Corps was given use of part of the Site. The Job Corps Center property, including Piers 6, 7, and 8, was formally transferred to the Department of Labor in 1971. The Job Corps allowed portions of the former NAS Site to be leased for a variety of commercial enterprises.

In 1980, the Oregon Department of State Lands purchased 45 acres of the former NAS south of the Job Corps Center property. Because of the diversity of industries that operated at Tongue Point, the landfill may have been used for disposal of an assortment of solid and liquid wastes by a wide variety of generators.

A potential for unexploded ordnance (UXO) within the landfill boundaries has been identified. The U.S. Army Corps of Engineers (USACE) Huntsville District conducted an archive search and concluded that it is unlikely that UXO is present within the landfill. A copy of the UXO Archive Search report is provided in Appendix 01115-B.

## 1.8 SITE CONTAMINATION

### 1.8.1 Investigation Results

Investigations of the nature and extent of contamination at the site have been conducted since 1983 resulting in a large database of physical and chemical parameters for soil, groundwater, surface water, sediment, petroleum hydrocarbons (light non-aqueous phase liquid [LNAPL]), and tissue samples. Results have been compiled and discussed in numerous reports, which are presented in this section.

- a. Oregon Department of Environmental Quality Limited Site Investigation (1983). Groundwater samples were collected from a shallow well completed in the landfill. Oil and grease, phenols, naphthalene, and polychlorinated biphenyls (PCBs) were detected (Shapiro 1993).
- b. USACE Tongue Point Monitoring Program (1988–1992). Pre- and post-dredging sediment sampling was performed in the navigation channel and turning basin. Dredging was subsequently performed (Siipola et al. 1993).
- c. CARS, Inc. Sediment Investigation (1990). Eighteen sediment cores were drilled near Piers 4 and 5. The highest detected analyte concentrations were found at a sediment depth of 4 to 8 feet (1.2 to 2.4 meters).
- d. USACE Tongue Point Landfill Limited Remedial Investigation (LRI) (1992–1993). Eight sediment (S1 to S8) grab samples were collected in the intertidal region of the landfill. Additionally, five groundwater monitoring wells and seven seeps near the landfill were sampled and analyzed (Shapiro 1993).
- e. USACE Finger Piers Groundwater Monitoring (1994). Seven monitoring wells were installed along the eastern shoreline near Piers 1 through 6. The wells were installed to monitor groundwater in support of the finger piers sediment study. Two of these wells (FP6 and FP7) are located within the landfill study area (USACE 1994c).

Results from the above investigations were used to guide subsequent remedial investigations conducted by the USACE at the finger piers and the landfill sites during 1995 through 1998.

USACE Tongue Point Naval Air Station Finger Piers Sediments Limited Remedial Investigation (1995). Thirty-two sediment cores and surface grab samples were collected from around the finger piers. Contaminants were detected deeper than the biologically active zone. Twenty surface sediment grab samples (BGS01 to BGS20) were collected at background locations in Cathlamet Bay. These results were used for background concentrations for comparisons with landfill area sediment results (Woodward-Clyde 1998).

USACE Tongue Point Naval Air Station Limited Remedial Investigation Phase II – Landfill Site (1995–1998). Twenty “nearshore” surface sediment grab samples (SD-01 to SD-20) were collected from the shoreline area at the toe of the landfill. Sixty surface sediment grab samples (FGS101 to FGS160) were collected from the nearshore, mudflats and offshore areas adjacent to the landfill. Additional work completed during this investigation includes: geophysical surveys; soil gas and groundwater screening surveys; drilling of soil borings and installation of shallow and deep monitoring wells; installation of non-aqueous phase liquids (NAPL) monitoring wells; soil sampling and analysis; groundwater, seep, and LNAPL sampling and analysis; physical testing of soil and sediment samples; and aquifer testing. Results from this investigation are as follows:

- a. LNAPL was observed in shallow groundwater wells and monitoring well implants throughout the landfill. Locations were downgradient (southeast) of an identified sludge-burning tank and associated pipelines. In addition, LNAPL was observed at one seep location. The measured LNAPL thickness ranges from a sheen to approximately 2 inches (5 centimeters). However, measured LNAPL thickness in isolated areas occasionally exceeded 24 inches (61 centimeters). The LNAPL thickness measurements were collected infrequently; however, data indicate that the LNAPL may be adsorbed to vadose zone soils, present as residual stranded product below the mean water table or forming a measurable and mobile layer on the groundwater in several areas of the landfill.
- b. Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), PCBs, and pesticides are all present in the shallow soils (5 to 25 feet [1.5 to 7.6 meters]) within the landfill, which corresponds to the extent of landfill debris, the burn pit, and associated pipelines. Distributions of these chemicals generally correspond with the extent of LNAPL. Additionally, chemicals identified in surface soils were similar to those found in subsurface soils, indicating the landfill was not covered with soils from a different source.
- c. Chemicals detected in soil gas were also detected in soil and/or groundwater samples collected from the landfill. Ambient air concentration estimates indicate that concentrations of volatile organic compounds (VOCs) emanating from the landfill are less than regulatory levels (URS Greiner Woodward Clyde 1999a); however, the chemicals detected indicate the presence of chlorinated solvent sources that have not been located. A likely source would be the LNAPL.
- d. TPH, and low concentrations of VOCs, SVOCs, and pesticides were detected in shallow aquifer groundwater samples. Many individual volatile and semivolatile components of TPH (e.g., benzene, toluene, and polycyclic aromatic hydrocarbons [PAHs]) were detected. However, compounds that are not components of TPH (e.g., vinyl chloride, phthalates, pesticides, and metals) were also detected in groundwater, though most were detected at low concentrations. This may have resulted from leaching of other waste debris within the landfill.

- e. Though a distinct LNAPL layer that could be sampled was only observed at location Seep 1 (SW-7), TPH was detected at all seep sampling locations except one. Concentrations ranged from 0.26 milligrams per liter (mg/L) in May 1996 to 940 mg/L in August 1996. Due to the nature of LNAPL, seep water concentrations may reflect a mixture of petroleum product and water and not the dissolved fraction of petroleum product in water. Detected compounds are consistent with those observed in LNAPL. During low tide, LNAPL can be seen discharging from Seep 1. Small drops are released, float to the surface, and are dispersed to surface water. During low tide when the tide has receded and sediments are exposed, an iridescent sheen can be observed on surface sediments. To minimize transport of LNAPL from seeps to offshore sediments and surface water, an absorbent boom was installed along the eastern edge of the landfill along Mill Creek.
- f. Sediment samples were collected from nearshore, offshore, and off-site reference locations. Total petroleum hydrocarbons were detected in all nearshore sediment samples. Detected concentrations ranged from 40 milligrams per kilogram (mg/kg) to 9,830 mg/kg. Off-shore samples were also collected from the mudflats and offshore areas in Mill Creek and into Cathlamet Bay. All samples were analyzed for TPH and metals; however, only a small subset of samples was analyzed for other chemicals. For these locations, TPH results were used as an indicator for the presence of other organic contaminants since most of these are contained in the LNAPL. Detected chemicals are similar to those observed in nearshore sediment samples; however, detected concentrations are much lower. Off-site reference sediment samples were collected from areas adjacent to Mott Island and Lois Island to identify regional background concentrations of chemicals detected in site samples. (URS Greiner Woodward Clyde 1999a).

USACE Tongue Point Landfill site Engineering Evaluation/Cost Analysis (1998). After completion of the Draft LRI, information needed to complete the engineering evaluation and risk assessments was identified. To fill identified data gaps, limited additional sampling was performed. Focussed sampling and analysis included surface soil, surface water, LNAPL, sediment, and tissue.

- Addenda to the LRI (URS Greiner Woodward Clyde 2000). Pre-design activities for the remedial action were conducted under this contract to provide necessary information for the Phase I and Phase II design, including the following:
  - Addendum 1: Wetlands Delineation
  - Addendum 2: Biological Assessment
  - Addendum 3: 404(b)(1) Analysis
  - Addendum 4: Sediment Report
  - Addendum 5: Geotechnical Exploration
  - Addendum 6: Pilot Pumping Test
  - Addendum 7: Light Non-Aqueous Phase Liquid Evaluation
  - Addendum 8: Investigation-Derived Waste Management

### 1.8.2 Summary of Site Contamination

The human health risk assessment and screening ecological risk assessment identified the following primary chemical groupings at the Site associated with one or more media (soil, sediment, groundwater, and surface water) at concentrations which exceed risk-based criteria:

- Metals (i.e., As, Ba, Cu, Pb, Hg, Zn, Cd, Ag)
- TPH
- PAHs
- Dibenzofuran
- bis(2-ethylhexyl)phthalate
- Dioxins/furans
- PCBs (i.e., Aroclor 1254, Aroclor 1260)
- Pesticides (i.e., dichlorodiphenyldichloroethane [DDD], dichlorodiphenyldichloroethene [DDE], dichlorodiphenyltrichloroethane [DDT])

Maximum concentrations for the “chemicals of concern” detected in each Site medium are summarized in Table 01115-1. Sampling locations are shown on Plate C-2 (Exploration Location Plan of Previous Site Investigations) in the Drawings. More detailed chemical and physical information can be found in reports for the Site in the document repository at the Astoria Public Library, 450 10<sup>th</sup> Street, Astoria, Oregon 97103.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION (NOT USED)**

**Table 01115-1****MAXIMUM CONCENTRATIONS FOR CHEMICALS OF CONCERN IN SITE MEDIA**

<b>Chemical of Concern</b>	<b>Maximum Soil Concentration</b>	<b>Maximum Sediment Concentration</b>	<b>Maximum LNAPL Concentration</b>	<b>Maximum Shallow Groundwater Concentration</b>	<b>Maximum Surface Water Concentration</b>
<b>SVOCs</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Benzo(a)anthracene	6,300	5,600	65	ND	0.004
Benzo(a)pyrene	3,900	3,800	42	ND	0.002
Benzo(b)fluoranthene	4,900	4,800	36	ND	0.005
Dibenz(a,h)anthracene	1,100	1,100	ND	ND	0.002
Indeno(1,2,3-cd)pyrene	2,400	2,300	28	ND	0.002
Chrysene	6,300	7,700	54	ND	0.004
Fluorene	16,000	370	260	2	0.009
Acenaphthylene	50	580	ND	ND	0.003
Pyrene	8,900	8,600	270	ND	0.006
bis(2-ethylhexyl) phthalate	120,000	1,800	26,000	1.8	0.026
Dibenzofuran	6,900	460	110	ND	0.003
<b>PESTICIDES</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
4,4'-DDD	240	48	28,000	0.1	ND
4,4'-DDE	1,500	73	27,000	ND	ND
4,4'-DDT	58	15	ND	ND	ND
<b>PCBs</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Aroclor 1254	630	370	180,000	ND	ND
Aroclor 1260	1,700	190	49,000	ND	ND
<b>TPH</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Gasoline Range	2,200	330	250,000	1.5	--
Diesel Range	49,000	4,300	940,000	4.2	--
Motor Oil Range	34,000	5,200	540,000	1.5	--
<b>METALS</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/kg)</b>	<b>(mg/L)<sup>a</sup></b>	<b>(mg/L)<sup>a</sup></b>
Arsenic	265	118	--	0.029	--
Barium	2,650	409	--	0.704	--
Cadmium	36	2.6	--	0.0015	--
Copper	40,500	2,500	--	0.081	--
Lead	8,150	1,440	--	0.036	--
Mercury	15.7	2.13	--	0.0002	--
Silver	8	1.3	--	ND	--
Zinc	27,100	2,140	--	0.908	--
<b>DIOXINS/FURANS</b>	<b>(pg/g)</b>	<b>(pg/g)</b>	<b>(pg/g)</b>	<b>(pg/L)</b>	<b>(pg/L)</b>
Total HpCDD	1,600	1,300	89,000	--	1.35
Total HpCDF	550	430	26,000	--	0.3
Total HxCDD	580	460	31,000	--	0.11
Total HxCDF	520	560	87,000	--	0.06
Total PeCDD	160	200	8,700	--	ND

**Table 01115-1 (Continued)**  
**MAXIMUM CONCENTRATIONS FOR CHEMICALS OF CONCERN IN SITE MEDIA**

<b>Chemical of Concern</b>	<b>Maximum Soil Concentration</b>	<b>Maximum Sediment Concentration</b>	<b>Maximum LNAPL Concentration</b>	<b>Maximum Shallow Groundwater Concentration</b>	<b>Maximum Surface Water Concentration</b>
<b>DIOXINS/FURANS</b>	<b>(pg/g)</b>	<b>(pg/g)</b>	<b>(pg/g)</b>	<b>(pg/L)</b>	<b>(pg/L)</b>
Total PeCDF	560	640	21,000	--	ND
Total TCDD	110	140	6,200	--	ND
Total TCDF	570	740	23,000	--	ND
OCDD	4,500	2,700	200,000	--	3.9
OCDF	460	210	20,000	--	0.6

<sup>a</sup>The metals concentrations shown for groundwater and surface water are shown as total metals.

Notes:

mg/kg – milligram per kilogram

µg/kg – microgram per kilogram

µg/L – microgram per liter

pg/g – picogram per gram

pg/L – picogram per liter

SVOCs – semivolatile organic compounds

ND – Not detected

-- – not sampled or no data available



**APPENDIX 01115-A**

**Soil Boring Logs**

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Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Boring Log KEY

Sheet 1 of 1

Dates/Drilled	10/0/95 through 6/0/97	Logged By	WOODWARD-CLYDE	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	Mean Lower Low Wtr-MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	Below Top of Casing-MLLW	Sampler Type	SEE BELOW	Approx. Surface Elevation (feet)	MLLW
Diameter of Hole (inches)	8-12	Diameter of Well (inches)	2	Type of Well Casing	SEE REMARKS
Type of Sand Pack	20/40 SAND	Type/Thickness of Seal(s)	SEE REMARKS	Screen Perforation	.01"
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1	1	TYPES OF SAMPLERS: Core Barrel Sampler		0	10	1345	Concrete Well Seal
			2	2			0	50		Bentonite Chips
			3	3			0	75		Bentonite Grout
			4	4	Split Spoon Sampler		0	100	1430	20/40 Sand, Schedule 80 PVC
			5	5						
			6	6						
			7	7	Standard Penetration Test					
			8	8						
			9	9						
5			10	10	Shelby Tube Sampler					
			20	20						
			30/6"	30/6"						
					USCS SOIL DESCRIPTIONS:					
					Fill Material					
					GP: Poorly graded gravels, gravel-sand mixtures, little or no fines					Screened Interval, Stainless Steel Screen
					GM: Silty gravels, gravel-sand-silt mixtures					
10					SP: Poorly graded sands, gravelly sands, little or no fines					Groundwater Depth
					SM: Silty sands, sand-silt mixtures					
					SP-SM					
15					ML: Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity					
					CL: Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					
					OL: Organic silts and organic silty clays of low plasticity					
20					PT: Peat and other highly organic soils					End Cap

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring SB-3

Sheet 1 of 2

Date(s) Drilled		10/16/95		Logged By		G. DAVIS		Checked By			
Drilling Method		HOLLOW STEM AUGER		Top of PVC Elevation (feet)				Total Depth Drilled (feet)		70.0	
Drill Rig Type		CME-75		Drilled By		CASCADE DRILLING, INC.		Hammer Weight/ Drop (lbs/in.)		140/30	
Groundwater Level (ft bgs)				Sampler Type		CB, SS		Approx. Surface Elevation (feet)		19.09 MLLW	
Diameter of Hole (inches)		8		Diameter of Well (inches)		NA		Type of Well Casing		NA	
Type of Sand Pack		NA		Type/Thickness of Seal(s)		BAROID HOLEPLUG, BENTONITE CHIPS, 0-70' BGS					
Comments											

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Background	Recovery %	Drilling Rate (time)	
0			1		Silty, sandy woody debris, brown, little coarse gravel road fill material, slightly moist		0	10		Slight hydrocarbon-like odor LEL = 0
					Same as above, with red-brown bark chips					
5			2				10	0		
			3		Same as above, wet			100		Strong hydrocarbon-like odor Medium sheen LEL = 0
10			4		SANDY SILT/SILTY SAND (SM); gray/tan, fine sandy silt to silty fine sand, wet (fill material)			80		
					Metal debris in sample					
15			5		Same as above, metal debris in sample		15	100		
					Same as above, brown oily substance (free product?) in sample					
20			6		Same as above		15	100		LEL = 0
25			7		SAND (SP-SM); gray fine sand with silt, black mottling, dense, damp to wet (alluvium)			100		Decrease in moisture Decrease in odor and sheen No visible product
					Same as above					
30					Same as above, coarser sand, wet					



Project: TONGUE POINT LANDFILL  
 Project Location: ASTORIA, OR  
 Project Number: E9518C

## Log of Boring SB-3

Sheet 2 of 2

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/ft			PID Background	Recovery %	Drilling Rate (time)	
30			8		Same as above					
35			9		Same as above					Medium hydrocarbon-like odor No visible product
40			10					100		
45			11		SAND (SP); gray/black, coarse, wet SAND (SP-SM); gray, fine sand with silt, black mottling, dense, damp to wet (alluvium) Same as above		0	100		
50			12		Coarse sand lens, 0.5 feet thick at 48.5 feet bgs PEAT (PT); clayey, silty peat with coarse gravel, very stiff SANDY GRAVEL (GP); gray, coarse sandy coarse gravel, wet		0			Slight hydrocarbon-like odor
55			13		SANDY GRAVEL (GM); clayey, silty, fine to coarse sandy fine gravel			100		
60			14		Same as above, coarsening gravel, less silt and clay		0	100		
65			15		SAND (SP-SM); gray, fine to coarse sand with silt and little gravel, damp, woody debris Same as above Increasing coarse sand		0	100		Slight hydrocarbon-like odor to 70 feet BGS
70					SILTY SAND (SM); gray, silty fine sand, black mottling, wood debris, wet Boring terminated at 70 feet BGS.					



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring SB-25

Sheet 1 of 1

Date(s) Drilled	6/5/97	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER		Top of PVC Elevation (feet)	Total Depth Drilled (feet)	19.5
Drill Rig Type	CME-75		Drilled By	CASCADE DRILLING, INC	Hammer Weight/Drop (lbs/in.) 140/30
Groundwater Level (ft bgs)	6 BGS		Sampler Type	SS	Approx. Surface Elevation (feet) 12.42 MLLW
Diameter of Hole (inches)	9	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA		Type/Thickness BAROID HOLEPLUG, BENTONITE CHIPS (0-19.5') of Seal(s)		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/ft			PID Screening	Recovery %	Drilling Rate (time)	
0			1						1445	
			2							
			3							
5			4							Hydrocarbon-like staining and odor
			5	13						
			6	10				60		Hydrocarbon-like sheen and odor
			7	18						Trace metal and glass fragments 4.5-11'
10			8	5			0	60		Hydrocarbon-like sheen
			9	8				60		LEL = 0
			10							Sheen on free water
15			11	8			0	100		Trace wire, metal, and wood fragments 13-19.5'
			12	13				100		
			13	15				100		
20										
25										
30										

Project: Tongue Point Landfill DAA

Project Location: Astoria, OR

Project Number: 53-F0072199.12

## Log of Boring 99SB04

Sheet 1 of 2

Date(s) Drilled	9/17/99	Logged By	Galen Davis	Checked By	Koorus Tahghighi
Drilling Method	HSA	Drilling Contractor	Cascade	Total Depth Drilled (feet)	46.5
Drill Rig Type	CME 850 Track Rig	Sampler Type	2" Dia.	Surface Elevation	-12 MLLW
Groundwater Level	-10 feet bgs	Hammer Weight and Drop	140 lb/30"	Top of PVC Elevation	NA
Diameter of Hole (inches)	8"	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation Depth	NA
Comments: Sampler driven with NW Rod with J thread					

Elevation, feet	Depth, feet	SAMPLES				Graphic Log	MATERIAL DESCRIPTION	Dry Density (pcf)	Water Content (%)	Plastic Limit	Liquid Limit	REMARKS AND FIELD/LAB TESTS
		Type	Number	Blows per 8-inch Interval	Percent Recovery							
0							Road FILL to 3 ft					CGI=0; PID=0; no odor
5							SANDY SILT/SILTY SAND (SM); brown sandy SILT/silty SAND with roots, etc. Moist, dark brown sandy SILT					Slight odor; CGI=0; PID=0
10							Silty SAND (see 99TP04)					
10-11.5			10-11.5	6-4-1	20		SAND (SP); loose, wet, gray medium SAND with trace silt (Stuff in sampler to 11 ft) (FILL)					Odor increase No sample collected
15							SAND and SILT (SM-ML); very loose, wet, gray fine to medium SAND and SILT, trace clay		57.9			No CGI=0; PID=0 Slight odor; sheen
15-16.5			15-16.5	1/18"	80							
20							Very loose as above (Small plug of loose landfill garbage from 21.1 to 21.3 ft) (FILL)					PID=0 down hole; CGI=0 Medium odor; medium sheen
20-21.5			20-21.5	0-1-2	80							
25							SANDY SILT (ML); very loose, wet, gray fine to medium sandy SILT, trace clay		49.2	26.8	39.1	PID=0; CGI=0 Slight odor; slight sheen
25-26.5			25-26.5	0-1-2	100							
30												

URS Greiner Woodward Clyde

01115-A5

Project: Tongue Point Landfill DAA

Project Location: Astoria, OR

Project Number: 53-F0072199.12

# Log of Boring 99SB04

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES				MATERIAL DESCRIPTION	Dry Density (pcf)	Water Content (%)	Plastic Limit	Liquid Limit	REMARKS AND FIELD/LAB TESTS
		Type	Number	Blows per 6-inch Interval	Percent Recovery	Graphic Log					
	30		30-31.5	0-1-3	100						Sample has no odor, no sheen Breathing zone=0 PID=0; CGI=0
	35		35-36.5	0-3-3	100						No picture; no odor, no sheen
	40		40-41.5	6-5-5	60		69.4	47.4			No visible product; no odor; no sheen No sample collected Specific gravity = 2.65 At 45 ft: Only enough sample for small plugs of material; when pulling auger can hear water pouring into hole (not methane bubbling) after pulling 10 ft
	45		45-46.5	16-24-16	50						
						END OF BORING AT 46.5'					
	50										
	55										
	60										
	65										
	70										

Report: ENV\_238; Project File: C:\PROGRA~1\JINTW\PROJECTS\TONGUEPT\GP-2; Out Template: QC\_COMP1.GDT Printed: 12/10/99

URS Greiner Woodward Clyde

01115-A6



Project: Tongue Point Landfill DAA

Project Location: Astoria, OR

Project Number: 53-F0072199.12

# Log of Boring 99SB05

Sheet 1 of 2

Date(s) Drilled	9/19/99	Logged By	Galen Davis	Checked By	Koorus Tahghighi
Drilling Method	HSA	Drilling Contractor	Cascade	Total Depth Drilled (feet)	62.0
Drill Rig Type	CME 16	Sampler Type	2" Dia.	Surface Elevation	-19 MLLW
Groundwater Level	-10 feet bgs	Hammer Weight and Drop	140 lb/30"	Top of PVC Elevation	NA
Diameter of Hole (inches)	8"	Diameter of Well (inches)	NA	Screen Perforation Depth	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments: Sampler driven with NW Rod with J thread					

Elevation, feet	SAMPLES				MATERIAL DESCRIPTION	Dry Density (pcf)	Water Content (%)	Plastic Limit	Liquid Limit	REMARKS AND FIELD/LAB TESTS
	Type	Number	Blows per 6-inch Interval	Percent Recovery						
0					TREE stumps logs and organic soils (FILL)					
5										
10		10-11.5	3-2-4	10	Wood debris in drive shoe (FILL)					No odor; no visible contamination No sample collected Headspace = 0
15		15-16.5	2-3-5	20	SILTY SAND (SM); loose, moist, black silty fine to coarse SAND with trace fine gravel, pieces of organic debris, degraded wood chips		40.2			Slight odor; little sheen Headspace = 0
20		20-21.5	2-4-5	80	SAND (SP with OL); loose, moist, gray fine SAND with thin layers of degraded organic material (peat), trace silt					No odor; no sheen Headspace = 0
25		25-26.5	2-3-5	100	SILTY SAND (SM); loose, moist, gray silty fine SAND, some silt, thin peat layer					No odor; no sheen Headspace = 0
30										

Report ENV\_238; Project File: C:\PROGRA~1\GINT\PROJECTS\TONGUEPT.GPJ; Data Template: WC\_CORP1.GDT Printed: 12/10/99

URS Greiner Woodward Clyde

01115-A7

Project: Tongue Point Landfill DAA

Project Location: Astoria, OR

Project Number: 53-F0072199.12

## Log of Boring 99SB05

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES				Graphic Log	MATERIAL DESCRIPTION	Dry Density (pcf)	Water Content (%)	Plastic Limit	Liquid Limit	REMARKS AND FIELD/LAB TESTS
		Type	Number	Blows per 6-inch Interval	Percent Recovery							
30	30-31.5			2-4-5	80		SILT and SAND (ML-SM); loose, moist, gray SILT and fine SAND, trace shell fragments					No odor or visible contamination Headspace = 0
35	35-36.5			4-3-4	80		SANDY SILT (ML); medium stiff, very moist, black/gray fine sandy SILT with some clay					No odor or visible contamination Headspace = 0
40	40-41.5			3-4-5	80		SANDY SILT (ML); medium stiff, moist, gray/black SILT, some clay, some fine sand, thin layers of medium sand with shell fragments, 1 or 2 clasts of siltstone (to 1 cm)					No odor or visible contamination Headspace = 0
45	45-46.5			3-4-3	80		Same as above Drive shoe tip has brown silty sandy fine gravel		56.5			No odor or visible contamination Headspace = 0
50	50-51.5			6-8-11	100		SILTY SAND (SM); medium dense, moist, gray silty fine to medium SAND, mottling					No odor or visible contamination Headspace = 0
55	55-56.5			6-7-11	60		Same as above					No odor or visible contamination Headspace = 0
60	A B			10-15-26	100		SANDY SILT (ML); hard, moist to dry, white fine sandy SILT (siltstone)	69.8	51.3			No odor; no visual contamination Headspace = 0 2 samples: S80560A (60-61 ft) and S80560B (61-62 ft) Samples not homogenized Specific gravity = 2.46
							END OF BORING AT 62'					
65												
70												

Report ENV\_238; Project File: C:\PROGRAM-1\GINTWPROJECTS\TONGUEPT.GPJ; Data Templates\WC\_Comp1.GDT Printed: 12/10/99

URS Greiner Woodward Clyde

01115-A8

Project: TONGUE POINT LANDFILL  
 Project Location: ASTORIA, OR  
 Project Number: E9518C

# Log of Boring MW-8S

Sheet 1 of 1

Date(s) Drilled	10/13/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	13.69 MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	6.51 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	11.30 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND(20-19";4-2')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (2-0')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Background	Recovery %	Drilling Rate (time)	
0					SANDY GRAVEL (GP); gray, fine to coarse sandy coarse gravel with cobbles, some silt, moist (fill material)					
5					Decreasing gravel and cobbles, increasing sand					Difficult drilling
10			1		SILTY SAND (SM); gray, fine to medium silty sand, abundant wood and root fragments, loose, wet (alkaline)			100	1430	Hydrocarbon-like odor (diesel?) and sheen
15			2		Same as above			100	1445	Hydrocarbon-like odor Collected COE lab sample for chemical analysis
20					Boring terminated at 20 feet BGS. Monitoring well installed to 19 feet BGS.					
25										
30										



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-8D

Sheet 1 of 2

Date(s) Drilled	10/13/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	14.22 MLLW	Total Depth Drilled (feet)	45.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	8.00 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	11.34 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (38.5-22.5')	Type/Thickness of Seals)	CONCRETE SEAL (0.5-0'), BENT. GROUT (20-0.5'), BENT. CHIPS (45-38.5'; 22.5-20')		
Screen Perforation .01" (37.5-27.5')					
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Background	Recovery %	Drilling Rate (time)	
0			1		Gravel road fill material at surface SANDY SILT (ML); gray, fine to medium sandy silt, trace fine gravel (fill material)		0	<10	955	Material description from drill cuttings
5			2		SANDY GRAVEL (GP); brown, fine to coarse sandy fine to coarse gravel, few wood fragments, wet (fill material)			90	1005	Hydrocarbon-like sheen on free-standing water LEL = 0
10			3		SILTY SAND/SANDY SILT (SM); gray, alternation layers of silty sand and sandy silt, sand fine to medium, abundant wood fragments, wet (alluvium) Increasing sand			100		
15			4		Seam of organic material (1 cm thick) SILTY SAND (SM); gray, silty fine sand, trace fine gravel, wet, trace plant fragments, trace white ash-like fragments		2	100	1040	LEL = 0
20			5		Laminated clean, medium to coarse sand and organic-rich silt, some wood fragments Dark gray to black lenses of sandy silt SILTY SAND (SM); gray, silty fine sand, trace fine gravel, wet			100		
25			6		SILT (OL); black, organic, medium to coarse sandy silt, trace siltstone gravel SILTY SAND (SM); gray, silty fine sand, trace coarse sand (well-rounded), wet, abundant wood fragments		15	100	1055	LEL = 0
30										



Project: TONGUE POINT LANDFILL  
 Project Location: ASTORIA, OR  
 Project Number: E9518C

# Log of Boring MW-8D

Sheet 2 of 2

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Background	Recovery %	Drilling Rate (time)	
30			7		SILTY SAND (SM); gray, fine silty sand with some medium to coarse sand, trace fine siltstone gravel, wet			100	1103	
35			8		Same as above, with trace coarse, well-rounded gravel, and pale green clasts of siltstone			100		Wood in sampler shoe and barrel
40			9		CLAYEY SILT (ML); light brown, clayey silt, hard, moist, friable (siltstone)					Drilling becoming more difficult
45					Same as above, with partings, 1mm thick Yellow-brown blocks of friable, laminated silt SILT (ML); gray-brown silt, slightly moist, friable			100	1130	Decreasing moisture and increasing friability
45					Boring terminated at 45 feet BGS, Monitoring well installed to 37.5 feet BGS					Decreasing moisture
50										
55										
60										
65										
70										



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-9

Sheet 1 of 1

Date(s) Drilled	10/14/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	14.77 MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	6.61 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	12.15 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (17.5-1.5')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (1.5-0.5')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (fpm)	
0					Gravel road fill material at surface				1000	
							3		1010	LEL = 0
5		1			SILTY SAND (SM); brown, fine to coarse silty sand, few gravel, loose, wet, abundant wood and metal fragments (fill material)			<10	1045	Slough in sampler
10		2			SILTY SAND (SM); gray, fine to medium silty sand, loose, wet, rapid dilatancy, few glass, ceramic, wire, and metal fragments (fill material)			10	1049	
15		3			Same as above, few glass fragments		0	10	1100	LEL = 0 Hydrocarbon-like odor in sandy drill cuttings
20					Boring terminated at 20 feet BGS, Monitoring well installed at 17.5 feet BGS.					Borehole sloughed to 8 feet BGS after pulling 4" diam. auger
25										
30										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

# Log of Boring MW-10S

Sheet 1 of 1

Date(s) Drilled	10/12/95	Logged By	G.DAVIS	Checked By			
Drilling Method	HOLLOW STEM AUGER		Top of PVC Elevation (feet)	15.63 MLLW	Total Depth Drilled (feet)	20.0	
Drill Rig Type	CME-75		Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30	
Groundwater Level (ft bgs)	7.90 BTOC		Sampler Type	CB	Approx. Surface Elevation (feet)	12.66 MLLW	
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK	Screen Perforation	.01" (20-5')
Type of Sand Pack	20/40 SAND(20-3')		Type/Thickness of Seal(s) CONCRETE SEAL (1-0'), BENTONITE CHIPS (3-1')				
Comments							

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		CLAY (CL); brown, clay with silt, moist, soft Color change to gray		0	10	1345	LEL = 0 Material description from drill cuttings
5			2		Same as above ? Material description not available			0		Water encountered at 6' BGS after pulling 4" ID auger Significant increase in drilling rate
10			3		Same as above ? Material description not available		0	0		
15			4		Wood debris with fine to medium sand (in sampler shoe)		0		1430	Slight hydrocarbon-like odor in core barrel sampler Collected sample for VOAs, TPH-G and B270 only
20					Same as above (in sampler shoe) Boring terminated at 20 feet BGS, Monitoring well installed to 20 feet BGS.					
25										
30										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-10D

Sheet 1 of 2

Date(s) Drilled	10/11/95	Logged By	G. DAVIS	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	15.79 MLLW	Total Depth Drilled (feet)	65.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	9.69 BTOC	Sampler Type	CB, SS	Approx. Surface Elevation (feet)	12.84 MLLW
Diameter of Hole (inches)	10	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (59.5-45.5')	Type/Thickness of Seal(s)	CONCRETE SEAL (2-0'), BENT. GROUT (45.5-2'), BENT. CHIPS (65-59.5')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		GRAVELLY SILT (GM); brown, gravelly silt with cobbles, wet (precipitation), vegetation at ground surface		0	20	1500	Drilling rate 1 ft/sec Radiation = 36 c/min
					SILTY CLAY (CL); brown, silty clay, soft, moist					
5			2		Same as above, gray with trace fine gravel (<5%)		0			
					Concrete in sample					Slight hydrocarbon-like odor
10			3		SILTY SAND (SM); gray, silty fine sand, loose to medium dense, moist, with little fine gravel (hydraulic fill) Rootlets, wood fibers, and plant material present		0	0		Groundwater encountered
15			4		Material description not available			0		Hydrocarbon-like sheen on free-standing water in sampler No soil recovered in sampler, no soil cuttings generated Drill advancing easily with minimal force applied
20			5		Material description not available			0		No recovery using split spoon sampler and down-hole hammer
25			6		SAND (SP); gray, fine sand, medium dense, moist to wet (alluvium ?)			100		
30					Same as above with layering 0.1-2.0' thick, mottled appearance, to 43.5': Layers of black, silty sand, convoluted,					10"-long steel w spring in sampler at 29', origin unclear



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-10D

Sheet 2 of 2

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
30			7		thin; layers of peat with wood chips and decomposed wood; layers of white-gray, medium quartz sand; layers of tan, medium sand (alluvium)		0	100		Radiation = 24 c/min
35			8		Lens of coarse sand, 2" thick		0	100		No odor except natural organic
40			9		Lens of stiff silt, 6" thick Shell fragments present, increasing with depth		0	100		Radiation = 24 c/min
45			10		SAND (SP-SM); gray, fine sand with silt, very dense, almost dry; contains rip-up clasts (0.25-0.5" diameter) of silt, pinkish white-gray, hard, dry, with coarse sand, gravel grains, and wood chips; indicative of turbulent flow deposits SAND (SP-SM); gray, fine sand with little silt, dense, wet, thin black laminations		0	100		Drilling rate 1 feet/sec
50			11		GRAVEL (GP); gray, fine to coarse gravel, with fine to coarse sand and little silt, dense, very wet SAND (SP-SM); fine sand, with layering of thin silt, medium to coarse sand, and fine gravel; moist to wet (some silt layers almost dry, sand and gravel portions wet), some structures visible		0	100	1725	
55			12		SANDY GRAVEL (GP); gray, coarse sandy, fine to coarse gravel, with some silt and fine sand, loose to medium dense, wet, gravel composed of well-indurated, angular sandstone		0	100		Screen interval sample collected at 58' for full suite of chemical analyses
60			13		CLAYEY SILT (ML); green-gray, clayey silt, stiff to very stiff, slightly moist					Bottom of 4" auger at 60' BGS
			14		Grading to brown, almost dry, contains occasional grains of coarse sand, small wood chips, and thin, convoluted layers of translucent clay					
			15		SILT (ML); white-yellow silt, very hard, dry, fractured (from driving sampler?) (siltstone)					
65					Lens of gray clay, stiff, moist					Bottom of 6" auger at 65' BGS
					Boring terminated at 65 feet BGS. Monitoring well installed to 58.5 feet BGS.					
70										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-11

Sheet 1 of 1

Date(s) Drilled	10/11/95	Logged By	G. DAVIS	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	16.01 MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	9.11 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	13.50 MLLW
Diameter of Hole (inches)	10	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (20-2')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (2-0.5')		
Comments					

Depth, feet	Elevation, feet	SAMPLES				MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in	Graphic Log			PID Screening	Recovery %	Drilling Rate (time)	
0			1	55/5'		Gravel road fill material at surface		0	40	1300	Drill rate approximately 5 seconds per 5 feet of drilling  Slight hydrocarbon-like odor  Product observed in soil Native material at 9'  Drill rate approximately 5 seconds per 5 feet of drilling
5			2			SILTY CLAY/CLAYEY SILT (ML); brown, silty clay and clayey silt, with black mottled coarse sandy silt, stiff, burnt debris, glass syringe fragment (fill material)  Same as above		0			
10			3			Black material present (product?) CLAYEY SILT (ML); brown-gray-tan, clayey silt, soft, wet (alluvium ?) Wood and plant debris SAND (SM); gray-black, fine sand, loose to medium dense, moist to wet		0			
15			4			Same as above, less plant material  Layering to 20'  Layer of tan, medium sand, dense, wet, quartz lithology Laminations, as above, brown, thin, increasing silt percent					
20						Boring terminated at 20 feet BGS. Monitoring well installed to 20 feet BGS.					
25											
30											



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-12S

Sheet 1 of 1

Date(s) Drilled	10/14/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	18.62 MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	10.76 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	16.20 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND(20-2')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (2-0')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0										
5			1		SILTY SAND (SM); brown, silty fine to coarse sand with fine to coarse gravel (fill material)		0	30	1450	Material description from drill cuttings LEL = 0
10			2		Wood debris and slough CLAYEY SILT (ML); gray, clayey silt with light brown and iron-oxide mottling, trace fine gravel, very moist (hydraulic fill) SAND (SP); gray, fine to medium sand, wet, loose (hydraulic fill)			< 10		Hydrocarbon-like odor Hydrocarbon-like odor and sheen
15			3		SAND (SP); gray, fine to medium sand, few silt, loose, wet SILTY SAND (SM); gray, silty fine sand, loose, wet, rapid dilatancy, abundant mica flakes		0	100	1510	LEL = 0 Hydrocarbon-like odor and sheen
20					SILTY SAND (SM); green-gray, silty fine sand, trace coarse sand, wet, few wood fragments, finer than above (alluvium) Boring terminated at 20 feet BGS. Monitoring well installed to 19 feet BGS.				1530	Borehole over-drilled with 6" auger
25										
30										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-12D

Sheet 1 of 2

Date(s) Drilled	10/15/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	18.61 MLLW	Total Depth Drilled (feet)	65.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	6.61 BTOC	Sampler Type	CB, SS, ST, SPT	Approx. Surface Elevation (feet)	16.03 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (38.5-22.5')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENT. GROUT (43-0.5'), BENT. CHIPS (65-59')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		SAND (SP-SM); gray, fine to medium sand, with some silt and cobbles, loose, dry to moist, brick and wood debris present (fill material)			0		LEL = 0
5					Same as above					
10			2				3	50		LEL = 0
15			3		SAND (SP); gray, fine sand, loose, wet, with little coarse sand (hydraulic fill)			100	830	Shelby tube (15 ft): 300 psi max. exerted during drilling Shelby tube (16.5 ft): < 100 psi max. exerted during drilling Sample collected at 18' for physical analysis Hydrocarbon-like odor detected
20			4							
			5	5	SILTY SAND (SM); gray to black, fine to medium, silty sand, loose, wet, trace well-rounded, coarse sand (alluvium)					
25				4						
				5						
			6		SILTY SAND (SM); gray, silty fine sand, loose, wet, trace wood fragments, coarse sand, and mica, occasional black laminations (alluvium)			100		Sample collected at 25' for physical analysis Slight hydrocarbon-like odor detected
30					Increasing medium to coarse sand in					

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-12D

Sheet 2 of 2

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/ft			PID Screening	Recovery %	Drilling Rate (time)	
30			7		laminations					Shelby tube: 400 psi maximum exerted during drilling
			8							Shelby tube: 150 psi maximum exerted during drilling
35			9	2						
			10	3				100		
				6						
40			11		SILTY SAND (SM); gray, silty fine sand, trace coarse sand and mica, 10cm layer of coarse sand at 38 feet			100		
					Same as above					
45			12					100		
50			13		Same as above			100		
55			14		SILTY SAND (SM); gray, silty fine sand, medium dense, wet, trace wood fragments					Sample collected at 55' for physical analysis
					SILT (ML); pale gray silt, very hard, moist to wet, scattered dark gray, fine to medium sand stringers (siltstone)					Drilling becomes significantly more difficult at 58' (no sample collected)
60			15	50/5*					1050	
										Drilling consistently difficult
65					Boring terminated at 65 feet BGS, Monitoring well installed to 58 feet BGS.					
70										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-14

Sheet 1 of 1

Date(s) Drilled	10/26/95	Logged By	E. RATSCH	Checked By			
Drilling Method	HOLLOW STEM AUGER		Top of PVC Elevation (feet)	21.62 MLLW	Total Depth Drilled (feet)	21.5	
Drill Rig Type	CME-75		Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30	
Groundwater Level (ft bgs)	13.00 BTOC		Sampler Type	CB	Approx. Surface Elevation (feet)	19.10 MLLW	
Diameter of Hole (inches)	8	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK	Screen Perforation	.01" (21-6')
Type of Sand Pack	20/40 SAND (21-3')		Type/Thickness of Seal(s) CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (3-0.5')				
Comments							

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/ft			PID Background	Recovery %	Drilling Rate (time)	
0			1		Wood debris in cuttings, wood fragments in sample					
5			2		Material description not available			10		
10			3		SANDY SILT (SM); brown, sandy silt, organic-rich, few rootlets and wood fragments SILTY SAND (SM); gray-green, fine to coarse silty sand, few wood fragments, scattered iron-oxide staining, trace glass and metal fragments, coarse gravel Fragments of plastic bottles, copper wire in sandy silt matrix		1	0		LEL=0 Material description from drill cuttings Hydrocarbon-like odor on refuse debris
15			4				0	0		LEL=0
20			5		Metal and wood fragments in drill cuttings			0		No sample collected for analysis due to lack of sample recovery Hydrocarbon-like sheen on sampler
21.5					Boring terminated at 21.5 feet BGS. Monitoring well installed to 21 feet BGS.					
25										
30										



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-15

Sheet 1 of 1

Date(s) Drilled	10/17/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	21.87 MLLW	Total Depth Drilled (feet)	21.5
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	13.31 BTOC	Sampler Type	CB, SS	Approx. Surface Elevation (feet)	19.32 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (21.5-3')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (3-0.5')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		Brown to reddish-brown wood debris				1350	
			2							
			3							
5			4		Same as above		0	50		Wood debris not sampled per instructions from C. Brennan
					Same as above					
10			5		CLAYEY SILT (ML); green-gray and iron-oxide mottling, clayey silt SAND (SP); gray, fine to medium sand, abundant red grains			< 10		LEL=0
15			6		SANDY SILT (SM); black, sandy silt with gravel, wet, few glass and wood fragments, (fill material)		0	100	1435	Bentonite observed in sample at 14' Metal fragment in sampler shoe Hydrocarbon-like odor and sheen LEL=0
			7		SAND (SP); gray, fine to medium sand, wet, trace wood fragments and silt, highly dilatant (hydraulic fill ?)		0	40	1530	
20			8		SILT (ML); olive-brown silt, soft, moist, trace fine sand, plant fragments, and mica (alluvium ?)			100		Hydrocarbon-like odor and sheen
					SILTY SAND (SM); gray-green, silty fine sand, few medium sand, trace black organic fragments and plant fragments Boring terminated at 21.5 feet BGS. Monitoring well installed to 20 feet BGS.					
25										
30										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-16S

Sheet 1 of 1

Date(s) Drilled	10/16/95		Logged By	E. RATSCH		Checked By		
Drilling Method	HOLLOW STEM AUGER		Top of PVC Elevation (feet)	19.64 MLLW		Total Depth Drilled (feet)	20.0	
Drill Rig Type	CME-75		Drilled By	CASCADE DRILLING, INC		Hammer Weight/ Drop (lbs/in.)	140/30	
Groundwater Level (ft bgs)	10.49 BTOC		Sampler Type	CB, SS		Approx. Surface Elevation (feet)	17.11 MLLW	
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK		Screen Perforation	.01" (19-4')
Type of Sand Pack	20/40 SAND (20-2')			Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENTONITE CHIPS (2-0.5')			
Comments								

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		Wood debris				1435	
			2		SAND (SP); brown, fine to medium sand, few glass fragments (fill material)					Cobble pushed auger to side, drill past
			3		SAND; gray, fine to medium sand, trace silt, fine gravel, and wood fragments, moist					
5			4		Same as above		3	50	1500	
10			5		CLAYEY SILT (ML); mottled green-gray and iron-oxide, clayey silt, trace fine gravel, layer 10cm thick (fill material)			30		Hydrocarbon-like odor (diesel) and sheen
					SAND; gray, fine to medium sand, few silt, wet (hydraulic fill)					Strong hydrocarbon-like odor and sheen
					Same as above, loose					
15			6		SAND; gray, fine to medium sand, trace silt, abundant mica flakes, loose, wet		0	100		Hydrocarbon-like odor and sheen
					SILT (ML); gray silt, wet, parting into 1cm thick layers, abundant mica on fracture planes (alluvium)					
20					SILTY SAND (SM); gray, silty, fine sand, trace wood and plant fragments, mica, wet				1540	
					Occasional laminae of fine to medium sand and organic debris					
					Boring terminated at 20 feet BGS, Monitoring well installed to 19 feet BGS.					
25										
30										



Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-16D

Sheet 1 of 2

Date(s) Drilled	10/17/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	19.43 MLLW	Total Depth Drilled (feet)	43.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	10.60 BTOC	Sampler Type	CB, SS, ST, SPT	Approx. Surface Elevation (feet)	16.94 MLLW
Diameter of Hole (inches)	12	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (43-25.5')	Type/Thickness of Seal(s)	CONCRETE SEAL (0.5-0'), BENT. GROUT (25.5-0.5')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
0			1		SILTY SAND (SM); brown, fine to medium, silty sand, abundant wood debris, few coarse gravel (fill material)				730	
			2							
5			3					60		
					CLAYEY SILT (ML); brown, clayey silt, few coarse gravel (cobbles), wood fragments, wet					
10			4		SAND, gray, fine to medium sand, wet (hydraulic fill)			80		Hydrocarbon-like odor
					Same as above, loose					Strong hydrocarbon-like odor and sheen
15			5		SILT (ML); gray-brown, soft (alluvium)			0		Shelby tube: no recovery
			6		Same as above, brown					Shelby tube: 50 psi maximum exerted during drilling
20			7		SILTY SAND (SM); gray, silty, fine sand, trace mica (alluvium)					Hydrocarbon-like odor
			8	1 1/2" 8/6"						Shelby tube: 150 psi maximum exerted during drilling
25			9		Same as above, scattered black, organic-rich mottling			100		
30										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

# Log of Boring MW-16D

Sheet 2 of 2

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/6in			PID Screening	Recovery %	Drilling Rate (time)	
30		Hatched	10		SILTY SAND (SM); gray, mottled, silty, fine sand Scattered silt laminae and partings	Dotted		100		
35			11		SANDY SILT (SM); fine sandy silt  Increasing coarse sand Frequent laminae of clean, medium sand			100		
40			12		Increasing coarse gravel, large wood fragments, and clasts of sandstone and siltstone					Drilling becomes abruptly more difficult  Shelby tube: 900 psi maximum exerted during drilling (tube bent)
			13	16	SILT (ML); green-gray silt, hard (siltstone)					
				18	Same as above, blue-green					
				31	Increasing consolidation and hardness, fractured blue-green siltstone, grading to white					
45					Boring terminated at 43 feet BGS, Monitoring well installed to 40.5 feet BGS.					
50										
55										
60										
65										
70										

Project: TONGUE POINT LANDFILL

Project Location: ASTORIA, OR

Project Number: E9518C

## Log of Boring MW-20

Sheet 1 of 1

Date(s) Drilled	10/25/95	Logged By	E. RATSCH	Checked By	
Drilling Method	HOLLOW STEM AUGER	Top of PVC Elevation (feet)	22.54 MLLW	Total Depth Drilled (feet)	20.0
Drill Rig Type	CME-75	Drilled By	CASCADE DRILLING, INC	Hammer Weight/ Drop (lbs/in.)	140/30
Groundwater Level (ft bgs)	14.33 BTOC	Sampler Type	CB	Approx. Surface Elevation (feet)	20.02 MLLW
Diameter of Hole (inches)	10	Diameter of Well (inches)	2	Type of Well Casing	80 PVC/STN STL PREPACK
Type of Sand Pack	20/40 SAND (20-3')	Type/Thickness of Seal(s)	CONCRETE SEAL (1-0'), BENTONITE CHIPS (3-1')		
Comments					

Depth, feet	Elevation, feet	SAMPLES			MATERIAL DESCRIPTION	Well Completion Log	Sample			REMARKS
		Type	Number	Blows/ft			PID Background	Recovery %	Drilling Rate (time)	
0			1					25		
5			2		SANDY SILT (SM); brown, fine to coarse, sandy silt, organic-rich, few fine gravel and wood fragments, trace earthworms (fill material)		0	<10		LEL = 0
10			3					<10	840	Poor recovery due to wood fragments in sampler shoe Wood at 12.5'
15			4		SAND (SP); gray, fine to medium sand, wood fragments (hydraulic fill)		4	25	900	Poor recovery, small amount in shoe
20					SAND (SP); gray, fine to medium sand, trace silt, mica, wood fragments, loose, wet, rapid dilatancy Boring terminated at 20 feet BGS, Monitoring well installed to 20 feet BGS.				910	LEL = 0
25										
30										



(as required by ORS 537.765 & OAR 690-240-095)

Instructions for completing this report are on the last page of this form.

Start Card # 101729 L15601

(1) OWNER/PROJECT: WELL NO. GMW-1  
Name DR Dept. of state lands  
Address 75 Summer St. N.E.  
City Salem State DR Zip 97310-1337  
(2) TYPE OF WORK:

**(6) LOCATION OF WELL** By legal description

Well Location: County Clatsop  
Township T3N (N or S) Range R9W (E or W) Section 11  
1/4 of NE 1/4 of above section.

2. Either Street address of well location \_\_\_\_\_

or Tax lot number of well location 106

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: 11.5 m above bed.

ft. below land surface. Date \_\_\_\_\_

Artesian Pressure \_\_\_\_\_ lb/sq. in. Date \_\_\_\_\_

**(8) WATER BEARING ZONES:**

Depth at which water was first found N.M.

[illegible]

(9) WELL LOG: Ground elevation 19

[illegible]

Date started 6-11-97 Completed 6-11-97

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

knowledge and belief. MWC Number \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

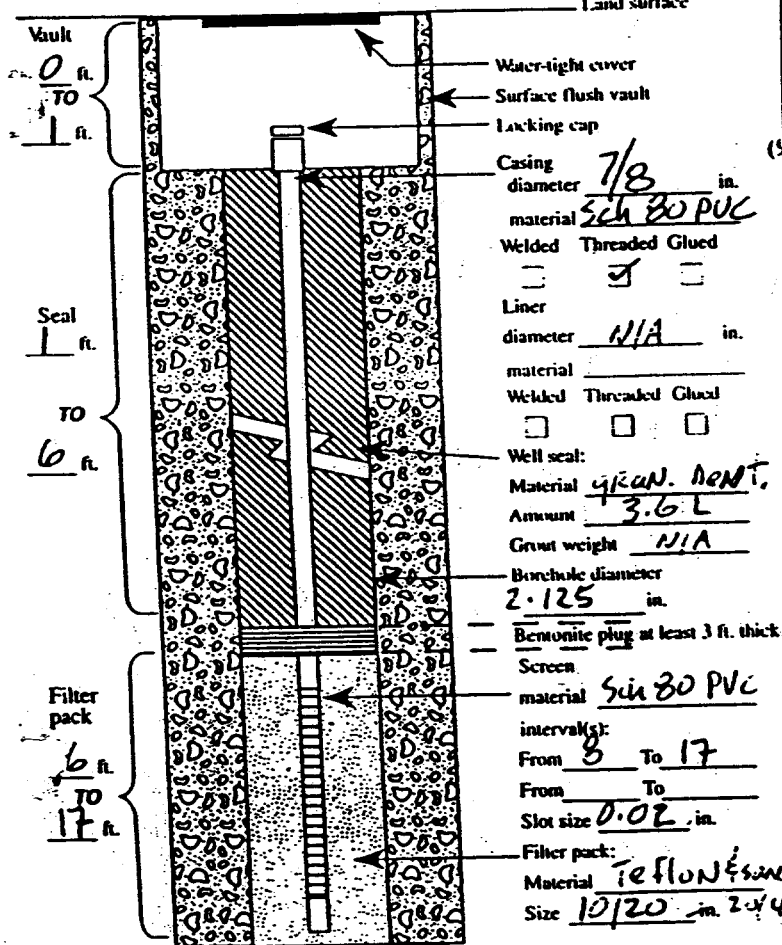
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. Work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed: Mary Wood MWC Number 10368  
Date 6-28-97

SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

## BORE HOLE CONSTRUCTION

Special Standards ☒ Yes ☐ No Depth of completed well 17 ft.



**(5) WELL TEST:**

☐ Pump    ☐ Bailer    ☐ Air    ☐ Flowing Artesian

Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM \_\_\_\_\_

Conductivity \_\_\_\_\_ PH \_\_\_\_\_

Temperature of water \_\_\_\_\_ °F/C Depth artesian flow found \_\_\_\_\_ ft.

Was water analysis done? ☐ Yes ☐ No

### By whom?

Depth of strata to be analyzed. From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Remarks:

\_\_\_\_\_

Name of supervising Geologist/Engineer \_\_\_\_\_

ORIGINAL & FIRST COPY WATER RESOURCES DEPARTMENT

01115- A26



**Instructions for completing this report are on the last page of this form.**

L 15603

WELL NO. GMW-3

Name Dr. J. L. State Lands  
Address 775 Summer St. NE  
City Salem State Or Zip 97310-1337

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

☒ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☒ Hollow Stem Auger      ☒ Other *push pipe*

Well Location: County Clatsop  
Township T3N (N or S) Range R4W (E or W) Section 11

1. SW 1/4 of NE 1/4 of above section.

2. Either Street address of well location

or Tax lot number of well location 156

(7) STATIC WATER LEVEL: No measurement

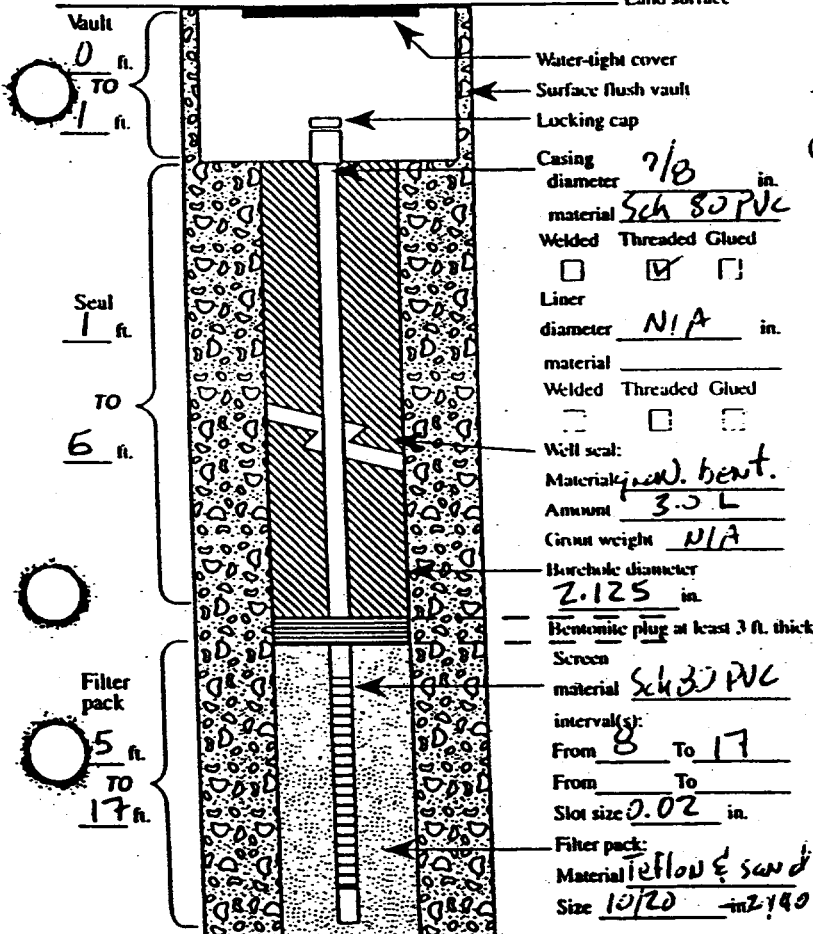
Ft. below land surface.

Arterial Pressure \_\_\_\_\_ IV. 4 in.

	Yes	No
Special Standards	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Depth of completed well 17 ft.

### Land surface

☐ Pump      ☐ Bailer      ☐ Air      ☐ Flowing Artesian

Permeability	Yield	GPM
--------------	-------	-----

Conductivity PH

Temperature of water	*F/C	Depth artesian flow found	ft.
----------------------	------	---------------------------	-----

Was water analysis done? ☐ Yes ☐ No

### By whom?

Depth of strata to be analyzed. From  ft. to  ft.

Remarks:

Name of supervising Geologist/Engineer

Depth at which water was first found \_\_\_\_\_ *P.M.*

From	To	Est. Flow Rate	SWL

Ground elevation 19

[illegible]

Date started 6-3-97 Completed 6-3-97

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number •

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(banded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 10365

Signed Jimmy Wood Date 6-28-97

ORIGINAL &amp; FIRST COPY-WATER RESOURCES DEPARTMENT

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

0115-A28

(as required by ORS 537.765 & OAR 690-240-095)

**Instructions for completing this report are on the last page of this form.**

Start Card # 101732

(1) OWNER/PROJECT: OK Dept. of State Lands WELL NO. GMW-4  
ADDRESS 775 Summer St. NE  
City Salem State OR Zip 97310-1337

**(2) TYPE OF WORK:**

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

### **(3) DRILLING METHOD**

☐ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☐ Hollow Stem Auger      ☒ Other *Push Probe*

**(6) LOCATION OF WELL** By legal description

Well Location: County Clatsop  
Township T3N (N or S) Range R9W (E or W) Section 11

1. SW 1/4 of NE 1/4 of above section.

**2. Either Street address of well location**

or Tax lot number of well location

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: Not measured

Ft. below land surface. Date

Arterial Pressure	lb/sq. in.	Date
-------------------	------------	------

**(8) WATER BEARING ZONES:**

Depth at which water was first found N.M.

From	To	Est. Flow Rate	SW1.

(9) WELL LOG: Ground elevation 19

[illegible]

Date started 6-3-97 Completed 6-3-97

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

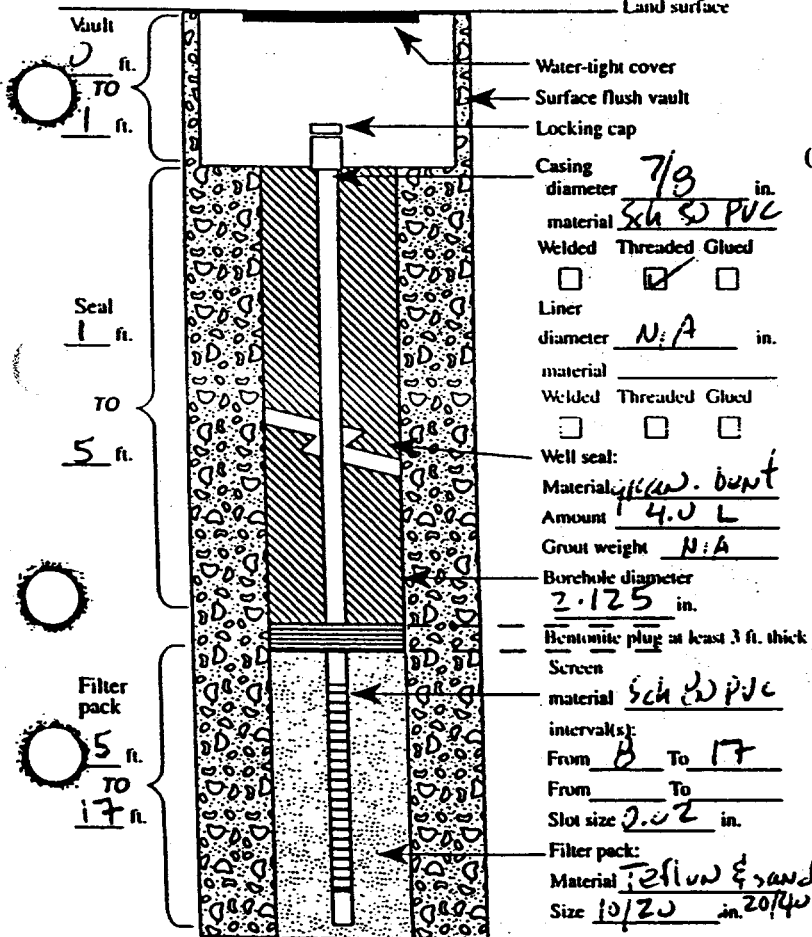
Signed Larry Wood MWC Number 10361  
Date 10-25-97

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

**(A) BORE HOLE CONSTRUCTION**

Special Standards      Yes ☒      No ☐      Depth of completed well 17 ft.

\_\_\_\_\_ and surface \_\_\_\_\_



**(5) WELL TEST:**

☐ Pump      ☐ Bailer      ☐ Air      ☐ Flowing Artesian  
 Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM  
 Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ °F/C      Depth artesian flow found \_\_\_\_\_ ft.

Was water analysis done? ☐ Yes ☐ No

### By whom?

Depth of strata to be analyzed. From                      ft. to                      ft.

Remarks:

Name of supervising Geologist/Engineer

**ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT**

01115-A29







Instructions for completing this report are on the last page of this form.

L:5007

WELL NO. GMW-7

Address 775 Summer St. NE

City Wichita State OK Zip 73101-337

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

☒ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☒ Hollow Stem Auger      ☒ Other Push/Pull

Well Location: County Clatsop  
Township T3N (N or S) Range 24W (E or W) Section 1

SW 1/4 of NE 1/4 of above section.

2. Either Street address of well location

or Tax lot number of well location 100

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

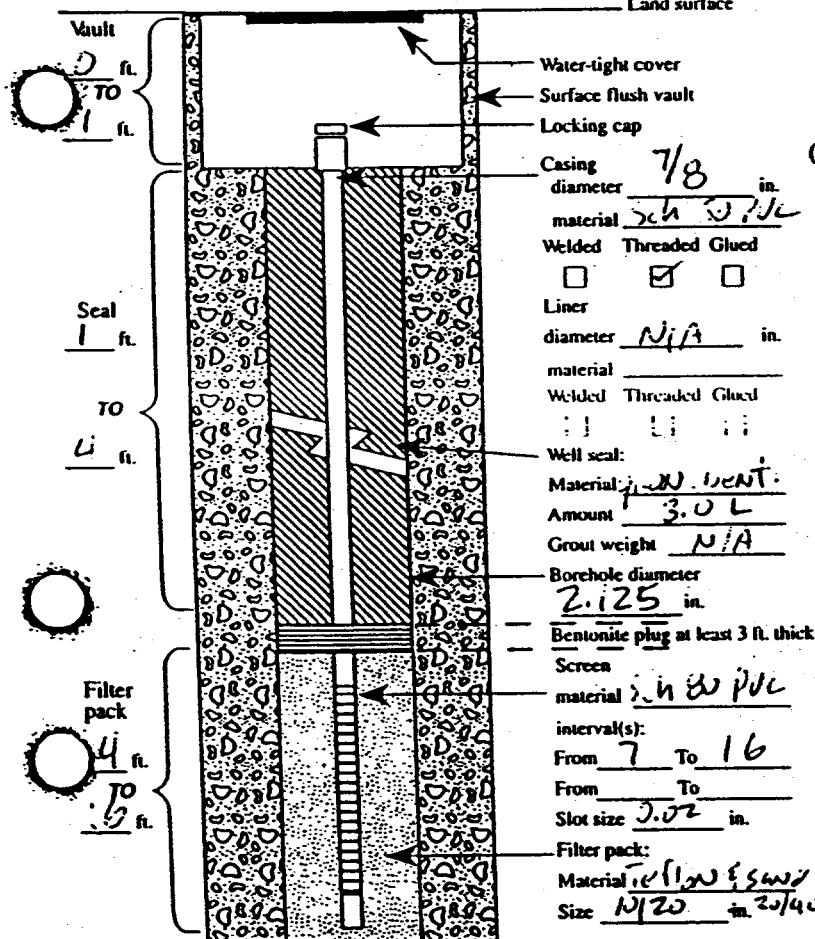
\_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_

Artesian Pressure \_\_\_\_\_ lb/sq. in. Date \_\_\_\_\_

**BORE HOLE CONSTRUCTION**

Special Standards ☒ Yes ☐ No

Depth of completed well 16 ft.



☐ Pump      ☐ Bailor      ☐ Air      ☐ Flowing Artesian  
 Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM  
 Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ °F/C      Depth artesian flow found \_\_\_\_\_ ft.  
 Was water analysis done? ☐ Yes ☐ No  
 By whom? \_\_\_\_\_  
 Depth of strata to be analyzed. From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
 Remarks: \_\_\_\_\_

Name of supervising Geologist/Engineer

Depth at which water was first found N.M.

From	To	Est. Flow Rate	SWI.

[illegible]

Date started 6-5-97 Completed 6-5-97

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(banded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. The work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Randy Wood MWC Number 13361  
Date 5-25-97

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

01115-A32

(as required by ORS 537.765 & OAR 690-240-095)

**Instructions for completing this report are on the last page of this form.**

Start Card # 101730

(1) OWNER/PROJECT: Ill. Dept. of State Lands WELL NO. GMW-8  
775 Summer St NE  
 ADDRESS  
 City Salem State IL Zip 61310-1337

**(2) TYPE OF WORK:**

- ☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

### **(3) DRILLING METHOD**

- ☐ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☐ Hollow Stem Auger      ☒ Other *Push Probe*

**(6) LOCATION OF WELL** By legal description

Well Location: County Clatsop  
Township T. 3N (N or S) Range R. 9W (E or W) Section 11

1. Su 1/4 of NE 1/4 of above section.

**2. Either Street address of well location**

or Tax lot number of well location 106

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: Not measured

Ft. below land surface. Date

Artesian Pressure                      lb/sq. in.                      Date

**(8) WATER BEARING ZONES:**

Depth at which water was first found N.M.

[illegible]

(9) WELL LOG: Ground elevation 16

[illegible]

Date started 6-5-47 Completed 6-5-47

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Liam Wood MWC Number 10368  
Date 6-25-77

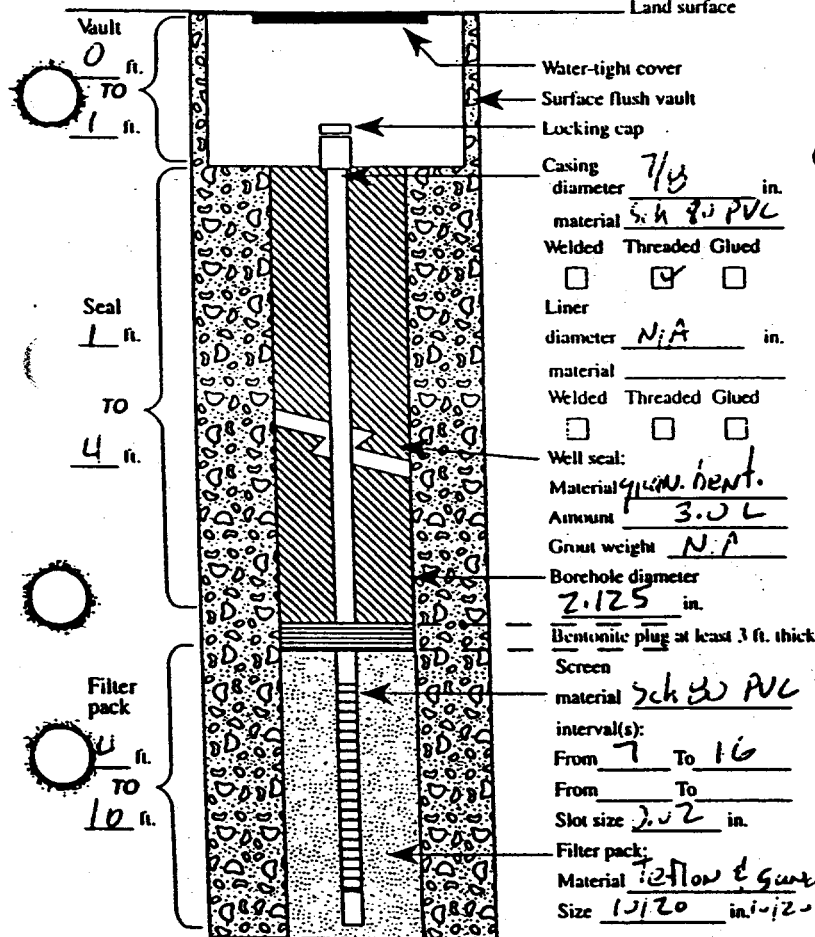
SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

#### 4. BORE HOLE CONSTRUCTION

Special Standards ☒ Yes ☐ No

Depth of completed well 16 ft.

## Land surface



**(5) WELL TEST:**

- ☐ Pump      ☐ Bailer      ☐ Air      ☐ Flowing Artesian  
 Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM  
 Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ \*F/C    Depth artesian flow found \_\_\_\_\_ ft.

Was water analysis done? ☐ Yes ☐ No

### By whom?

Depth of strata to be analyzed. From	ft. to	ft.
0	10	10
10	20	20
20	30	30
30	40	40
40	50	50
50	60	60
60	70	70
70	80	80
80	90	90
90	100	100
100	110	110
110	120	120
120	130	130
130	140	140
140	150	150
150	160	160
160	170	170
170	180	180
180	190	190
190	200	200
200	210	210
210	220	220
220	230	230
230	240	240
240	250	250
250	260	260
260	270	270
270	280	280
280	290	290
290	300	300
300	310	310
310	320	320
320	330	330
330	340	340
340	350	350
350	360	360
360	370	370
370	380	380
380	390	390
390	400	400
400	410	410
410	420	420
420	430	430
430	440	440
440	450	450
450	460	460
460	470	470
470	480	480
480	490	490
490	500	500
500	510	510
510	520	520
520	530	530
530	540	540
540	550	550
550	560	560
560	570	570
570	580	580
580	590	590
590	600	600
600	610	610
610	620	620
620	630	630
630	640	640
640	650	650
650	660	660
660	670	670
670	680	680
680	690	690
690	700	700
700	710	710
710	720	720
720	730	730
730	740	740
740	750	750
750	760	760
760	770	770
770	780	780
780	790	790
790	800	800
800	810	810
810	820	820
820	830	830
830	840	840
840	850	850
850	860	860
860	870	870
870	880	880
880	890	890
890	900	900
900	910	910
910	920	920
920	930	930
930	940	940
940	950	950
950	960	960
960	970	970
970	980	980
980	990	990
990	1000	1000

Remarks:

Name of supervising Geologist/Engineer

**ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT**

0115-A33





Instructions for completing this report are on the

Start Card # 101739

01115-A326

**Instructions for completing this report are on the last page of this form.**

OWNER/PROJECT: OR Dept of State Lands WELL NO. GMW-12  
Address 775 Summer St. NE  
City Salem State OR Zip 97310-1337

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

☐ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☐ Hollow Stem Auger      ☒ Other *Push Probe*

Well Location: County Clatsop  
Township TSN (N or S) Range 19W (E or W) Section 11  
1. SW 1/4 of NE 1/4 of above section.

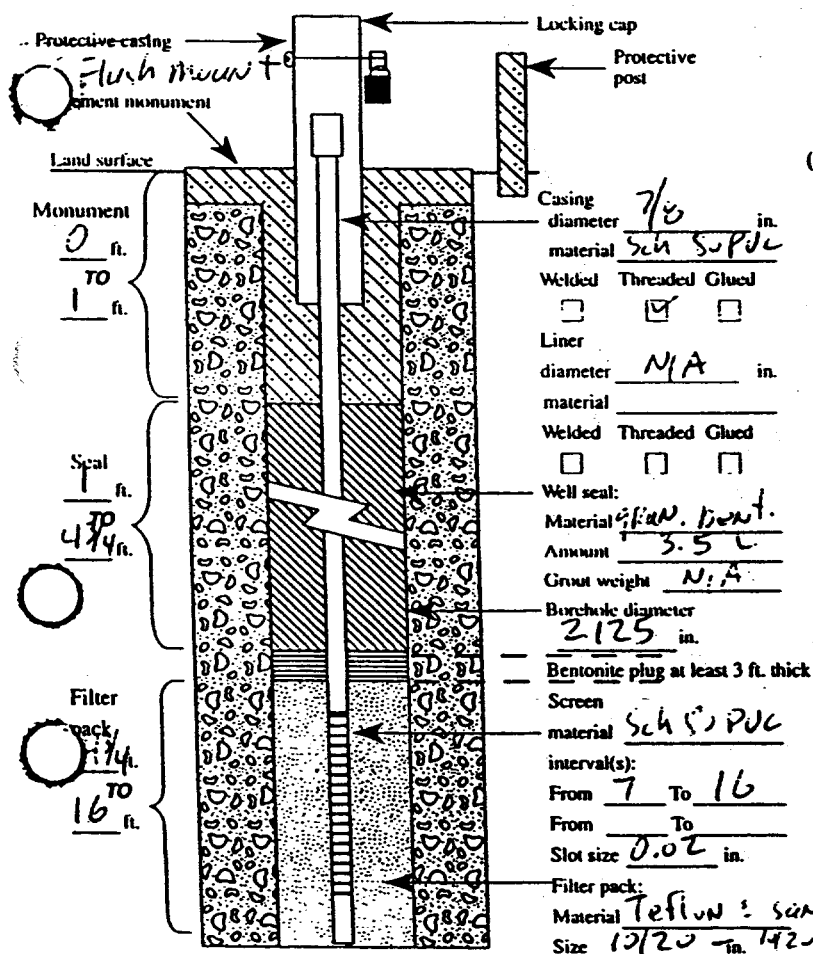
2. Either Street address of well location

or Tax lot number of well location 100

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

\_\_\_\_\_ Ft. below land surface. Date \_\_\_\_\_  
Artesian Pressure lb/sq. in. Date \_\_\_\_\_

Special Standards ☒ Yes ☐ No Depth of completed well 16 ft.



Depth at which water was first found N.M.

[illegible]

(9) WELL LOG: Ground elevation 19

[illegible]

Date started 6-6-97 Completed 6-10-97

☐ Pump      ☐ Bailor      ☐ Air      ☐ Flowing Artesian  
 Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM  
 Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ \*F/C    Depth artesian flow found \_\_\_\_\_ ft.

Was water analysis done? ☐ Yes ☐ No  
By whom?

Depth of strata to be analyzed. From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Remarks:

Name of supervising Geologist/Engineer \_\_\_\_\_

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Henry Wood MWC Number 1000  
Date 5-25-97

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

01115-A-37

As required by OHS 537.765 & OAR 690-240-0951

Start Card # 101741

WELL NO. GMW-13

Address 75 Summer St. NE

City Salem State OK Zip 74130-1557

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

☐ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☐ Hollow Stem Auger      ☒ Other Push Jr. 002

Well Location: County Clatsop  
Township T3N (N or S) Range 12W (E or W) Section 1

1. SW 1/4 of NE 1/4 of above section.

2. Either Street address of well location

or Tax lot number of well location 106

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: Not Measured

\_\_\_\_\_ Ft. below land surface. Date \_\_\_\_\_  
 Artesian Pressure lb/sq. in. Date \_\_\_\_\_

**(8) WATER BEARING ZONES:**

Depth at which water was first found 15. M

<b>From</b>	<b>To</b>	<b>Est. Flow Rate</b>	<b>SWI.</b>

(9) WELL LOG: Ground elevation 19

[illegible]

Date started 6-6-97 Completed 8-6-97

☐ Pump      ☐ Bailer      ☐ Air      ☐ Flowing Artesian  
 Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM  
 Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
 Temperature of water \_\_\_\_\_ °F/C      Depth artesian flow found \_\_\_\_\_ ft.

Was water analysis done? ☐ Yes ☐ No

**By whom?**

Depth of strata to be analyzed. From  ft. to  ft.

Remarks:

Name of supervising Geologist/Engineer \_\_\_\_\_

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

MWC Number

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. Work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

MWC Number 10365

Signed Jimmy Woods Date 6-25-47

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

0115-A38







(as required by ORS 537.765 & OAR 690-240-095)

**Instructions for completing this report are on the last page of this form.**

Start Card # 10744

(1) OWNER/PROJECT: WELL NO. 3MW-16  
 I. D/C Dept. of State Lands  
 Address 775 Summer St. NE  
 City Salem State OR Zip 97310-1337

**(2) TYPE OF WORK:**

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

### **(3) DRILLING METHOD**

<input type="checkbox"/> Rotary Air	<input type="checkbox"/> Rotary Mud	<input type="checkbox"/> Cable
<input type="checkbox"/> Hollow Stem Auger	<input checked="" type="checkbox"/> Other	Push Probe

**(6) LOCATION OF WELL** By legal description

Well Location: County Clatsop  
Township T1N (N or S) Range E9W (E or W) Section 11  
1. SW 1/4 of NE 1/4 of above section.  
2. Either Street address of well location

**2. Either Street address of well location**

or Tax lot number of well location 100

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: *NOT MEASURED*

	Ft. below land surface.	Date
Artesian Pressure	lb/sq. in.	Date

**(8) WATER BEARING ZONES:**

Depth at which water was first found N.M.

From	To	Est. Flow Rate	SWI.

(9) WELL LOG: Ground elevation 19

[illegible]

**Date started** \_\_\_\_\_ **Completed** \_\_\_\_\_

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

knowledge and belief.

MWC Number \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

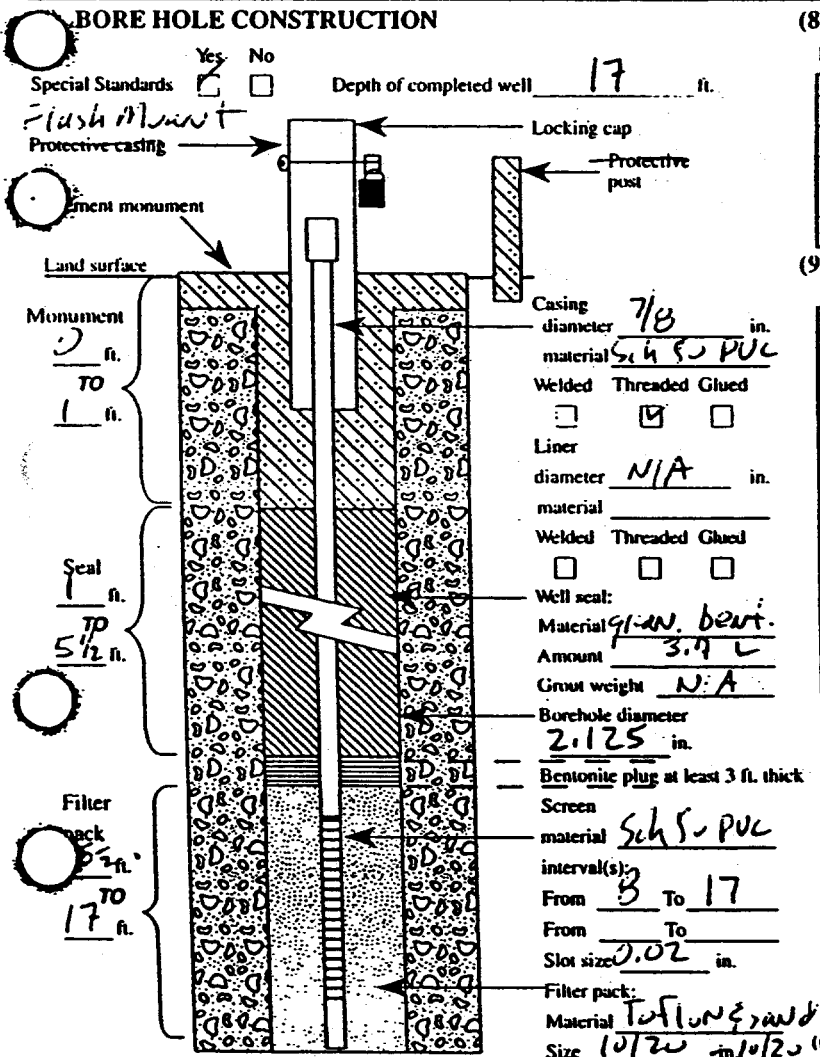
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Raywood MWC Number 1061  
 Date 0-2-17  
 SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

01115 - A41







**Instructions for completing this report are on the last page of this form.**

Start Card # 101747

**Instructions for completing this report are on the last page of this form.**

**(2) TYPE OF WORK:**

### **(3) DRILLING METHOD**

**(6) LOCATION OF WELL** By legal description

2. Either Street address of well location

(7) STATIC WATER LEVEL: Not measured

**(8) WATER BEARING ZONES:**

Depth at which water was first found N.M.

(9) WELL LOG: Ground elevation 2

Date started 6-11-97 Completed 6-11-97

**(unbonded) Monitor Well Constructor Certification:**

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. The work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Tom Wood MWC Number 450  
Date 6-25-97

SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

01115 - A44

## BORE HOLE CONSTRUCTION

Flush Mount  
Protective Easing

Protective post

ИСТОРИЯ И ТЕОРИЯ ПСИХОЛОГИИ

[illegible]

Monument   Casing  
diameter 18

Material 10A-20  
Welded Threaded G

diameter  $Ni\bar{A}$

Seal

Material giron.

Grass weight 2



Bentonite plug at location

Pin						Sch 5-
Back						material

interval(s)

10/24. }  From \_\_\_\_\_ To \_\_\_\_\_

File no.:

Material: 21W

(5) WELL-TEST:

☐ Pump      ☐ Barrel      ☐ Air      ☐ Flowing Area

Conductivity \_\_\_\_\_ PH \_\_\_\_\_

Was water analysis done? ☐ Yes ☐ No

By whom: \_\_\_\_\_  
 Date of report to be prepared: From \_\_\_\_\_ to \_\_\_\_\_

Remarks: \_\_\_\_\_

Name of supervising Geologist/Engineer \_\_\_\_\_

ORIGINAL &amp; FIRST COPY-WATER RESOURCES DEPARTMENT

(as required by ORS 537.765 & OAR 690-240-095)

**Instructions for completing this report are on the**

**Instructions for completing this report are on the last page of this form.**

Start Card #	101748
--------------	--------

(I) OWNER/PROJECT: OK Dept. of State Lands WELL NO. BMW-20  
775 Summer St. NE  
 City Burlington State VT Zip 05401-1337

(2) TYPE OF WORK:

☒ New construction      ☐ Alteration (Repair/Recondition)  
☐ Conversion      ☐ Deepening      ☐ Abandonment

(3) DRILLING METHOD

☐ Rotary Air      ☐ Rotary Mud      ☐ Cable  
☐ Hollow Stem Auger      ☒ Other *push probe*

**(6) LOCATION OF WELL** By legal description

Well Location: County Clatsop  
Township T5N (N or S) Range 17W (E or W) Section 11  
1. SW 1/4 of NE 1/4 of above section.  
2. **Either** Street address of well location

or Tax lot number of well location 100

**3. ATTACH MAP WITH LOCATION IDENTIFIED.** Map shall include approximate scale and north arrow.

(7) STATIC WATER LEVEL: Not Measured  
 \_\_\_\_\_ Ft. below land surface. Date \_\_\_\_\_  
 Artesian Pressure lb./sq. in. Date \_\_\_\_\_

**(8) WATER BEARING ZONES:**

Depth at which water was first found: N.M.

<u>From</u>	<u>To</u>	<u>Est. Flow Rate</u>	<u>SWL</u>

(9) WELL LOG: Ground elevation

[illegible]

Date started 6-12-97 Completed 6-12-97

3 (unbonded) Monitor Well Constructor Certification:

I certify that the work I performed on the construction, alterations, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to the best knowledge and belief.

Signed \_\_\_\_\_ Date \_\_\_\_\_

**(bonded) Monitor Well Constructor Certification:**

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

Signed Gary Wood MWC Number 10301  
Date 6-25-97

SECOND COPY-CONSTRUCTOR    THIRD COPY-CUSTOMER

## BORE HOLE CONSTRUCTION

Special Standards ☒ Yes ☐ No Depth of completed well 17 ft.

Diagram illustrating a Flush Mount Protective casing. The casing is shown with a locking cap and a protective post. Labels include: Flush Mount, Protective casing, Locking cap, and Protective post.

The diagram shows a cross-section of a land surface. On the left, there is a circular feature labeled "Concrete monument". An arrow points from this label to a horizontal layer representing the "Land surface". To the right of the land surface, there is a vertical rod or pipe extending upwards.


Monument 0 ft. ← Casing diameter 7 1/2 in.  
material 50.0 PUC

\_\_\_\_\_ ft.
 
 Welded ☐ Threaded ☒ Glued ☐  
 Liner ☐

diameter \_\_\_\_\_ in.  
 material \_\_\_\_\_  
 Welded ☐ Threaded ☐ Glued ☐

Well seal:  
Material: 1 in. Vent  
Amount: 5.0 L

Gross weight N/A  
Borehole diameter 2.125 in.



Filter pack

Bentonite plug at least 3 ft. thick

Screen

filter material Sch 50 PVC

17 to 17 ft.

Slot size 1/16 in.  
Filter pack:  
Material 20 fine & sand

(5) WELL TEST: \_\_\_\_\_

☐ Pump      ☐ Bailer      ☐ Air      ☐ Flowing Artesian  
Permeability \_\_\_\_\_ Yield \_\_\_\_\_ GPM \_\_\_\_\_

Conductivity \_\_\_\_\_ PH \_\_\_\_\_  
Temperature of water \_\_\_\_\_ °F/C Depth artesian flow found \_\_\_\_\_

Was water analysis done? | Yes | No  
By whom?

Depth of strata to be analyzed. From \_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Remarks: \_\_\_\_\_

Name of supervising Geologist/Engineer \_\_\_\_\_

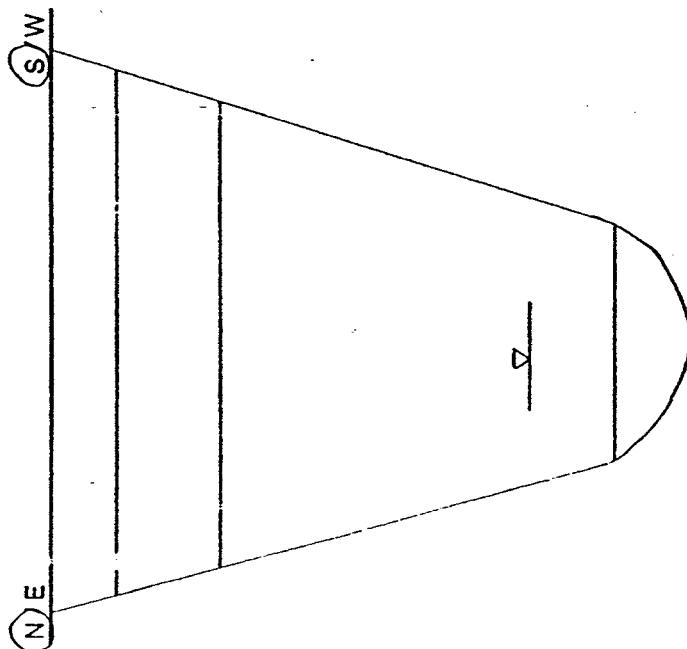
ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT

01115-A45

TEST PIT LOG      TEST PIT NUMBER: 99TP04      GROUND SURFACE ELEVATION: 12±

Project: Tongue Point Landfill DAA  
 Project No.: 53F0072199.12/00000  
 Site Location: Astoria, OR  
 Excavation Co.: Spencer Environmental

Date: 9/9/99  
 Field Personnel: J. Gibbens  
 Total Depth: 9'  
 Samples Collected: None



0	0.5'	Light brown sandy SILT, trace roots
2	2'	Light brown silty SAND, some gravel and cobbles
4		Gray silty CLAY, intermixed with metal debris (20%), occasional cobble
6		
7.5'		
8		Sand, cobble and debris (very porous)
10		Refusal at 9'

METER READING

depth	type	readings	units
2'	PID	0	ppm
4'	&	0	ppm
6'	CGI	0	ppm
8'		0	ppm

Depth to GW: 6.5' oily film and Odor

Depth to Refusal: 9'

Notes: 1 - Difficult excavation

2 - Fill 0-9'

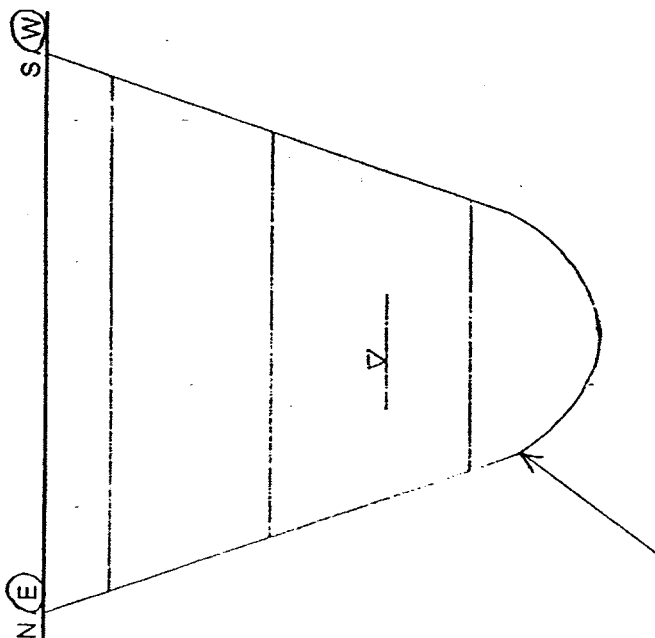


**URS Greiner Woodward Clyde**

**TEST PIT LOG** TEST PIT NUMBER: 99TP05 GROUND SURFACE ELEVATION: 11.5±

Project: Tongue Point Landfill DAA  
 Project No.: 53F0072199.12/00000  
 Site Location: Astoria, OR  
 Excavation Co.: Spencer Environmental

Date: 9/9/99  
 Field Personnel: K. Tahghighi  
 Total Depth: 8'  
 Samples Collected: None



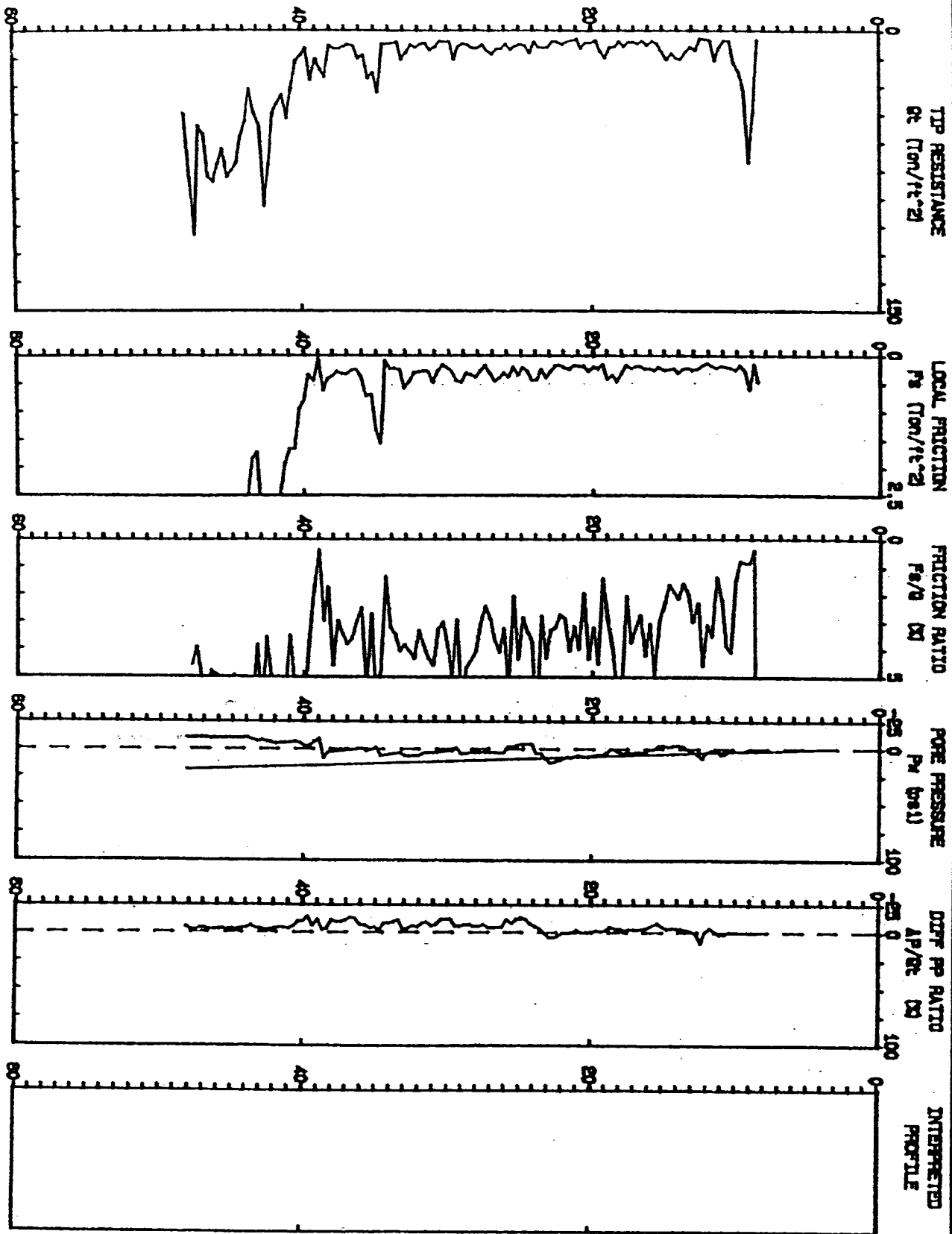
Water Pocket Encountered,  
 Flowed In and Leveled Out.  
 LNAPL (at 6")

Depth to GW: 5'  
 Depth to Refusal: Not encountered  
 Notes: 1 - Moderate excavation  
 2 - Soil PID reading 6 ppm  
 3 - Fill 0-8'

0	0.5' TOPSOIL, vegetation, roots
2	
3	Dark brown silty SAND, some gravel and cobble, some misc. fill (metal parts) (20% debris)
4	
6	Gray discolored silty SAND, moderate organic odor, water seep at 5'
8	Wet dark gray discolored silty SAND. Sheen on soil. Strong organic odor. Tree limb at 6'
10	End of Test Pit at 8'

METER READING		
depth	type	readings
2'	PID	0
4'	&	6
6'	CGI	6
8'		6
		ppm
		ppm
		ppm
		ppm

DEPTH (feet)



Operator : A.MEUS W.MCCA  
Location : TONUSE POINT P/3

CPT Date : 02-09-00 14:42  
Client URSMODKAROCLYDE

Sounding : SNO066 Pg 1 / 1  
Job No. : 53F007215912

# Vandehy Soil EXP.

UNDING DATA IN FILE SND066 02-09-00 14:42

ERATOR : A.MEEUS W.MCCA

LOCATION : TONUGE POINT P/3

CLIENT : URSWOODWARDCLYDE

JOB No. : 53F007219912

ndehey Soil Exploration LLC

O.Box 776 Banks, Oregon. 97106 (503) 324 3261

DEPTH meters	DEPTH feet	TIP Qc tsf	CORR TIP Qt tsf	FRICTION Fs tsf	FR RATIO Fs/Qc %	PORE PR Pw psi	P P RATIO Pv/Qc %	DIFF P P RATIO (Pv-Ph)/Qc %	INC I deg	INTERPRETED SOIL TYPE	N SPT
2.60	8.5	4.5	4.5	0.467	10.37	2.7	4.33	0.69	0.1		?
2.70	8.9	43.1	43.1	0.157	0.37	0.7	0.11	-0.29	0.4	silty sand to sandy silt	13
2.80	9.2	70.8	70.8	0.611	0.86	0.7	0.07	-0.19	0.3	silty sand to sandy silt	17
2.90	9.5	31.2	31.2	0.263	0.85	2.5	0.57	-0.05	0.3	silty sand to sandy silt	12
3.00	9.8	21.7	21.7	0.172	0.80	2.7	0.89	-0.06	0.3	sandy silt to clayey silt	9
3.10	10.2	17.4	17.4	0.259	1.49	2.0	0.84	-0.40	0.3	sandy silt to clayey silt	6
3.20	10.5	5.2	5.3	0.218	4.16	2.6	3.62	-0.68	0.3	silty clay to clay	5
3.30	10.8	5.1	5.1	0.199	3.94	4.7	6.68	2.02	0.3	clay	6
3.40	11.2	8.6	8.7	0.188	2.19	5.5	4.62	1.75	0.2	clayey silt to silty clay	5
3.50	11.5	16.0	16.0	0.215	1.34	1.4	0.63	-0.97	0.2	clayey silt to silty clay	5
3.60	11.8	5.1	5.1	0.181	3.54	1.0	1.44	-3.76	0.2	silty clay to clay	5
3.70	12.1	4.2	4.3	0.132	3.14	3.3	5.73	-0.85	0.2	clay	4
3.80	12.5	3.7	3.9	0.178	4.76	8.9	17.22	9.55	0.3	clay	5
3.90	12.8	10.2	10.3	0.237	2.32	5.3	3.71	0.80	0.3	silty clay to clay	5
4.00	13.1	8.6	8.6	0.260	3.02	2.9	2.43	-1.14	0.3	silty clay to clay	6
4.10	13.5	11.3	11.3	0.220	1.94	0.2	0.14	-2.66	0.3	clayey silt to silty clay	6
4.20	13.8	15.4	15.4	0.246	1.59	-2.7	-1.28	-3.40	0.3	clayey silt to silty clay	7
4.30	14.1	14.8	14.7	0.315	2.13	-3.3	-1.61	-3.90	0.3	clayey silt to silty clay	7
4.40	14.4	12.1	12.1	0.229	1.89	-2.6	-1.53	-4.40	0.3	clayey silt to silty clay	7
4.50	14.8	15.6	15.6	0.252	1.62	-2.0	-0.91	-3.21	0.3	clayey silt to silty clay	7
4.60	15.1	11.0	10.9	0.263	2.40	-3.2	-2.13	-5.49	0.3	clayey silt to silty clay	5
4.70	15.4	6.9	6.8	0.206	2.99	-2.8	-2.92	-8.42	0.3	clay	7
4.80	15.7	5.4	5.4	0.268	4.99	0.7	0.87	-6.37	0.3	clay	6
4.90	16.1	7.6	7.6	0.234	3.87	0.8	0.74	-4.51	0.3	clay	6
5.00	16.4	5.5	5.6	0.235	4.25	3.1	4.07	-3.35	0.3	clay	6
5.10	16.7	6.9	6.9	0.191	2.77	3.3	3.42	-2.68	0.3	clay	6
5.20	17.1	5.8	5.9	0.189	3.25	3.5	4.37	-3.02	0.3	clay	6
5.30	17.4	6.0	6.0	0.227	3.79	3.8	4.60	-2.75	0.3	clay	6
5.40	17.7	8.4	8.5	0.173	2.05	3.7	3.17	-2.17	0.3	clay	7
5.50	18.0	5.6	5.6	0.309	5.53	3.6	4.60	-3.65	0.3	clay	7
5.60	18.4	8.5	8.5	0.463	5.47	2.0	1.72	-3.85	0.3	clay	8
5.70	18.7	8.9	8.9	0.347	3.92	0.0	0.00	-5.43	0.3	clay	10
5.80	19.0	14.5	14.6	0.416	2.86	3.0	1.46	-1.92	0.3	silty clay to clay	8
5.90	19.4	11.1	11.1	0.155	1.40	5.4	3.49	-1.04	0.3	clayey silt to silty clay	5
6.00	19.7	5.0	5.1	0.229	4.62	5.8	8.35	-1.95	0.3	clay	7
6.10	20.0	6.3	6.4	0.206	3.26	6.7	7.63	-0.65	0.3	clay	6
6.20	20.3	6.2	6.4	0.276	4.42	7.4	8.55	0.02	0.3	clay	7
6.30	20.7	9.3	9.4	0.182	1.95	7.2	5.54	-0.28	0.3	silty clay to clay	5
6.40	21.0	4.4	4.5	0.181	4.07	6.2	10.03	-2.43	0.3	clay	6
6.50	21.3	5.1	5.2	0.164	3.22	7.5	10.56	-0.49	0.3	clay	5

Interpretation reference: Robertson & Campanella-1983, based on 60% hammer efficiency and .2 m sliding data average

DEPTH meters	DEPTH feet	TIP Qc tsf	CORR TIP Qt tsf	FRICTION Fs tsf	FR RATIO Fs/Qc %	PORE PR Pv psi	P P RATIO Pv/Qc %	DIFF P P RATIO (Pv-Ph)/Qc %	INC I deg	INTERPRETED SOIL TYPE	N SPT
6.60	21.7	5.8	5.9	0.240	4.15	8.2	10.24	0.35	0.3	clay	6
6.70	22.0	7.2	7.4	0.211	2.91	8.3	8.29	0.23	0.3	clay	6
6.80	22.3	5.8	6.0	0.164	2.80	10.8	13.33	3.16	0.3	clay	6
6.90	22.6	5.4	5.6	0.180	3.30	12.0	15.94	4.83	0.3	clay	6
7.00	23.0	8.5	8.7	0.287	3.37	13.1	11.05	3.83	0.3	clay	8
7.10	23.3	9.0	9.2	0.394	4.36	9.2	7.32	0.40	0.3	clay	8
7.20	23.6	8.8	8.9	0.246	2.80	4.2	3.43	-3.79	0.3	clay	8
7.30	23.9	6.1	6.2	0.432	7.06	3.9	4.64	-5.90	0.3	clay	8
7.40	24.3	12.1	12.0	0.445	3.68	-4.6	-2.74	-8.18	0.3	clay	9
7.50	24.6	8.1	8.0	0.269	3.31	-4.7	-4.21	-12.41	0.3	clay	9
7.60	24.9	7.5	7.5	0.211	2.81	-4.3	-4.07	-13.06	0.3	clay	7
7.70	25.3	8.2	8.1	0.353	4.32	-3.7	-3.25	-11.66	0.3	clay	8
7.80	25.6	10.2	10.1	0.206	2.83	-2.3	-1.63	-8.49	0.3	clay	9
7.90	25.9	7.2	7.2	0.389	5.36	-1.9	-1.88	-11.63	0.3	clay	8
8.00	26.2	9.4	9.5	0.306	3.25	3.7	2.82	-4.78	0.3	clay	9
8.10	26.6	9.8	9.8	0.402	4.13	3.9	2.91	-4.55	0.3	clay	10
8.20	26.9	12.6	12.6	0.463	3.68	3.0	1.69	-4.17	0.3	silty clay to clay	7
8.30	27.2	10.9	11.0	0.315	2.89	3.1	2.06	-4.79	0.3	silty clay to clay	7
8.40	27.6	7.5	7.5	0.181	2.42	3.0	2.93	-7.24	0.3	silty clay to clay	6
8.50	27.9	9.1	9.1	0.281	3.10	3.7	2.92	-5.54	0.3	clay	8
8.60	28.2	9.2	9.3	0.381	4.13	3.5	2.72	-5.72	0.3	clay	8
8.70	28.5	7.8	7.8	0.343	4.41	3.1	2.83	-7.32	0.3	clay	8
8.80	28.9	6.6	6.7	0.314	4.72	4.5	4.91	-7.10	0.3	clay	7
8.90	29.2	8.2	8.2	0.479	5.85	4.8	4.21	-5.68	0.3	clay	9
9.00	29.5	15.4	15.4	0.448	2.91	-0.8	-0.39	-5.71	0.3	clay	11
9.10	29.9	5.7	5.7	0.285	5.02	1.9	2.47	-12.16	0.3	clay	8
9.20	30.2	5.7	5.7	0.220	3.89	2.1	2.62	-12.24	0.3	clay	5
9.30	30.5	5.5	5.5	0.166	3.01	2.7	3.49	-11.96	0.3	clay	6
9.40	30.8	8.5	8.5	0.279	3.29	3.2	2.71	-7.44	0.3	clay	8
9.50	31.2	10.3	10.3	0.474	4.62	3.4	2.42	-6.06	0.3	clay	8
9.60	31.5	6.4	6.5	0.279	4.35	3.8	4.22	-9.50	0.3	clay	7
9.70	31.8	7.0	7.1	0.273	3.90	4.3	4.38	-8.33	0.3	clay	7
9.80	32.2	8.8	8.9	0.292	3.33	6.3	5.18	-5.10	0.3	clay	8
9.90	32.5	7.2	7.3	0.317	4.40	6.6	6.57	-6.09	0.3	clay	8
10.00	32.8	11.6	11.7	0.475	4.10	7.0	4.37	-3.59	0.3	clay	11
10.10	33.1	15.2	15.3	0.587	3.85	6.2	2.92	-3.20	0.3	clay	12
10.20	33.5	6.1	6.1	0.249	4.11	3.7	4.34	-11.22	0.3	clay	8
10.30	33.8	6.6	6.7	0.230	3.48	4.4	4.79	-9.63	0.3	clay	6
10.40	34.1	7.0	7.1	0.227	3.23	5.0	5.16	-8.53	0.3	silty clay to clay	4
10.50	34.4	6.9	6.9	0.092	1.35	5.7	5.98	-8.20	0.3	silty clay to clay	9
10.60	34.8	33.0	33.1	1.570	4.75	6.4	1.39	-1.59	0.4	clay	23
10.70	35.1	22.7	22.7	1.324	5.83	-1.7	-0.55	-4.93	0.5	clay	25
10.80	35.4	25.5	25.5	0.686	2.69	0.6	0.17	-3.77	0.5	silty clay to clay	14
10.90	35.8	13.2	13.2	0.725	5.51	1.9	1.01	-6.69	0.5	silty clay to clay	11
11.00	36.1	15.0	15.0	0.370	2.47	-0.7	-0.36	-7.17	0.5	silty clay to clay	8
11.10	36.4	8.2	8.2	0.246	2.99	0.2	0.16	-12.42	0.5	silty clay to clay	6
11.20	36.7	7.3	7.3	0.265	3.64	0.8	0.80	-13.53	0.5	clay	7
11.30	37.1	8.5	8.5	0.327	3.84	1.4	1.14	-11.24	0.5	clay	8
11.40	37.4	9.6	9.6	0.331	3.44	1.9	1.40	-9.69	0.5	clay	9
11.50	37.7	9.6	9.6	0.284	2.97	2.3	1.77	-9.48	0.5	clay	9

il interpretation reference: Robertson & Campanella-1983, based on 60% hammer efficiency and .2 m sliding data average

PTH ters	DEPTH feet	TIP Qc tsf	CORR TIP Qt tsf	FRICTION Fs tsf	FR RATIO Fs/Qc %	PORE PR Pw psi	P P RATIO Pv/Qc %	DIFF P P RATIO (Pw-Ph)/Qc %	INC I deg	INTERPRETED SOIL TYPE	N SPT
1.60	38.1	7.8	7.9	0.363	4.63	2.7	2.50	-11.34	0.5	silty clay to clay	8
1.70	38.4	24.9	24.9	0.425	1.71	3.2	0.94	-3.47	0.5	clayey silt to silty clay	9
1.80	38.7	21.0	21.2	0.628	2.98	8.6	2.94	-2.32	1.3	clayey silt to silty clay	10
1.90	39.0	15.5	15.3	0.059	0.38	-9.6	-4.45	-11.66	1.3	sandy silt to clayey silt	8
2.00	39.4	26.5	26.4	0.453	1.71	-6.5	-1.77	-6.02	1.3	sandy silt to clayey silt	7
2.10	39.7	9.5	9.4	0.344	3.63	-2.9	-2.20	-14.22	1.3	silty clay to clay	9
2.20	40.0	13.3	13.3	0.801	6.00	-2.5	-1.37	-9.97	1.3	clay	13
2.30	40.4	16.3	16.2	0.952	5.83	-5.9	-2.61	-9.71	1.3	clay	18
2.40	40.7	31.0	30.8	1.669	5.39	-7.2	-1.68	-5.45	1.5	clay	30
2.50	41.0	47.4	47.3	1.658	3.50	-6.2	-0.94	-3.42	1.5	silty clay to clay	26
2.60	41.3	34.8	34.7	1.936	5.56	-5.5	-1.14	-4.55	1.4	clay	37
2.70	41.7	39.2	39.1	2.485	6.35	-5.8	-1.06	-4.12	1.3	clay	38
2.80	42.0	44.2	44.1	2.706	6.12	-5.0	-0.81	-3.54	1.3	clay	48
2.90	42.3	72.0	71.9	3.555	4.94	-6.3	-0.63	-2.32	1.3	silty clay to clay	45
3.00	42.7	94.7	94.6	3.369	3.56	-7.6	-0.58	-1.88	1.3	clayey silt to silty clay	37
3.10	43.0	50.7	50.6	3.126	6.16	-8.5	-1.21	-3.65	1.3	silty clay to clay	38
3.20	43.3	44.7	44.6	1.714	3.83	-7.2	-1.16	-3.96	1.2	silty clay to clay	27
3.30	43.6	31.7	31.5	1.834	5.79	-9.2	-2.08	-6.06	1.0	clay	38
3.40	44.0	49.0	48.9	2.576	5.25	-10.6	-1.56	-4.15	1.0	clay	45
3.50	44.3	56.2	56.1	3.338	5.94	-10.4	-1.34	-3.61	0.9	clay	56
3.60	44.6	71.6	71.4	3.931	5.49	-10.3	-1.03	-2.83	0.8	very stiff fine grained (*)	66
3.70	44.9	75.4	75.3	3.730	4.95	-10.2	-0.97	-2.69	0.7	very stiff fine grained (*)	72
3.80	45.3	79.0	78.8	4.294	5.44	-10.4	-0.94	-2.60	0.7	very stiff fine grained (*)	71
3.90	45.6	63.9	63.8	3.684	5.76	-10.3	-1.16	-3.23	0.6	very stiff fine grained (*)	67
4.00	45.9	71.7	71.5	3.604	5.03	-10.1	-1.01	-2.87	0.6	very stiff fine grained (*)	69
4.10	46.3	81.2	81.1	3.969	4.89	-10.0	-0.89	-2.54	0.6	very stiff fine grained (*)	75
4.20	46.6	78.9	78.8	3.772	4.78	-10.1	-0.92	-2.64	0.7	very stiff fine grained (*)	71
4.30	46.9	55.7	55.6	3.347	6.00	-10.9	-1.40	-3.85	0.7	very stiff fine grained (*)	58
4.40	47.2	51.6	51.5	2.582	5.00	-10.7	-1.49	-4.15	0.7	silty clay to clay	43
4.50	47.6	110.2	110.0	4.311	3.91	-10.4	-0.68	-1.93	0.7	clayey silt to silty clay	42
4.60	47.9	79.0	78.9	3.607	4.56	-10.6	-0.97	-2.73	0.7	?	?
4.70	48.2	44.9	44.7	?	?	-10.9	-1.75	-4.88	0.7	?	?

1 interpretation reference: Robertson & Campanella-1983, based on 60% hammer efficiency and .2 m sliding data average

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**APPENDIX 01115-B**

**UXO Archive Search Report**

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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
HUNTSVILLE CENTER, CORPS OF ENGINEERS  
P.O. BOX 1600  
HUNTSVILLE, ALABAMA 35807-4301

CEHNC-OE-DC-D (200-1c)

30 March 1998

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, North  
Pacific Regional Headquarters (Former North  
Pacific Division), ATTN: CENWD-NP-PM-MP, P.O.  
Box 2870, Portland, OR 97208-2870

SUBJECT: Performance of Archives Search at Defense Environmental  
Restoration Program-Formerly Used Defense Sites (DERP-FUDS)  
Project No. F10OR048304 Naval Air Station Tongue Point

1. A DERP-FUDS Inventory Project Report (INPR) was prepared for subject project. A review of the INPR indicated that the site may have potential ordnance and explosives (OE) presence resulting from the land being used as a naval air station.
2. An Archives Search Report (ASR) was completed in December 1994. Naval Air Station Tongue Point was originally designated as a submarine and destroyer base. Later it was converted to a naval air station. There is no evidence of any OE being found on this site. Although a dredging report suggests the presence of 20mm shells, no actual rounds have been reported. There have been no other reports of any OE being found on this site. The Huntsville Center Technical Advisory Group reviewed this ASR and determined no further action for this site.
3. The archives search, site visit (performed during the period of 6 through 15 September 1994), and interviews have resulted in the conclusion that this site has no evidence of any chemical warfare material (CWM) or conventional OE. The site received a risk assessment code score of 5.
4. Based on the above, we recommend no further action regarding OE/CWM. We will update the FUDS database to reflect this recommendation and remove subject project from the FUDS workplan. The geographic district should retain a copy of this memorandum to satisfy the administrative record requirements of the National Contingency Plan.

CEHNC-OE-DC-D

30 March 1998

SUBJECT: Performance of Archives Search at Defense Environmental  
Restoration Program-Formerly Used Defense Sites (DERP-FUDS)  
Project No. F10OR048304 Naval Air Station Tongue Point

5. If you have any questions concerning this action, please call  
me at 205-895-1797, DSN 760-1797, or facsimile 205-895-1798.

FOR THE DIRECTOR OF ORDNANCE  
AND EXPLOSIVES TEAM:



DANNY R. MARDIS  
Archives Search Report Manager  
for Ordnance and Explosives Team

CF:

Commander, U.S. Army Corps of Engineers, Portland District,  
ATTN: CENWP-PE-DC, P.O. Box 2046, Portland, OR 97208-2946  
Commander, U.S. Army Corps of Engineers, St. Louis District,  
ATTN: CEMVS-PM-M (Mr. Mike Daise), 1222 Spruce Street, St.  
Louis, MO 63103-2833

Commander, HQUSACE, ATTN: CEMP-RF, 20 Massachusetts Avenue, NW.,  
Washington, DC 20314-1000

END OF SECTION

01115-B2

## SECTION 01140

### SUPPLEMENTARY REQUIREMENTS

#### PART 1 GENERAL

##### 1.1 DEFINITIONS

The references listed below are defined as indicated whenever they may be used in the TECHNICAL SPECIFICATIONS.

“SUPPLEMENTARY REQUIREMENTS” shall be read to pertain to any of the sections of the DIVISION 1 as required by the content of the section or paragraph containing the reference.

##### 1.2 CONSTRUCTION SCHEDULING

Refer to Section 01320 PROJECT SCHEDULE.

##### 1.3 PRE- CONSTRUCTION CONFERENCE

1.3.1 Within ten working days after Notice to Proceed, and prior to general mobilization of the Contractor equipment and personnel to the project site, the Contractor shall meet with the Contracting Officer (CO) or a representative for the Pre-Construction Conference. CONTRACTOR shall be prepared to discuss the following subjects, as a minimum:

- (a) Phasing of Work.
- (b) RAMP Requirements.
- (c) Required schedules, including progress schedule and schedule of values.
- (d) Sequencing of critical path work items.
- (e) Project changes and clarification procedures.
- (f) Use of site, access, office, and storage areas, security and temporary facilities.
- (g) Major priorities.
- (h) Coordination with adjoining site operations.
- (i) CONTRACTOR's safety plan and representative.
- (j) Progress payment procedures.

1.3.2 The Pre-Construction Conference will be held at the project site. The Contractor will be given at least 72 hours advance notice of the specific date and time of the conference by the Contracting Officer.

1.3.3 During the conference, the Contractor will be given a tour of the project site by the Contracting Officer or COR. Major site features will be noted.

1.3.4 Attendees will include but not be limited to:

CONTRACTING OFFICER or representatives  
CORPS OF ENGINEERS site manager  
CORPS OF ENGINEERS project manager  
CONTRACTOR's project manager  
CONTRACTOR's resident superintendent

CONTRACTOR's quality control representative  
CONTRACTOR's safety manager or representative.

Subcontractors' representatives whom CONTRACTOR may desire or CONTRACTING OFFICER may request to attend.

Others as appropriate.

#### 1.4 CORRESPONDENCE

1.4.1 All correspondence shall be addressed to the Administrative Contracting Officer, shall be serially numbered commencing with Number 1, with no numbers missing or duplicated and shall be furnished with an original and one copy. Enclosures attached or transmitted with the correspondence shall also be furnished with an original and one copy. Each serial letter shall make reference to the contract name, contract number and shall have only one subject.

1.4.2 All correspondence from the Contracting Officer will be also serially numbered with no numbers missing or duplicated. Letters to the Contractor will be forwarded in duplicate.

1.4.3 In the event there is more than one project within a contract, correspondence shall contain separate and distinct submittals to identify each project by name.

1.4.4 For submission of Contractor payment requests, See Section 01270, MEASUREMENT AND PAYMENT.

#### 1.5 CONTRACTOR'S FILES

Contractor shall maintain "Approved (Action Code "A") and "Approved Except as Noted (Action Code "B") submittals at the project site for government use.

#### 1.6 SPECIAL SAFETY REQUIREMENTS

In addition to Safety and Health Requirements Manual EM 385-1-1, dated 3 September 1996, the Contractor shall comply with the requirements listed below. Paragraph numbers refer to EM 385-1-1 or are added thereto.

(a) Paragraph 01 A 12: Add new paragraph: Safety Personnel. The Contractor shall designate a person on his staff to manage the Contractor's safety and accident prevention program. This person will provide a point of contact for the Contracting Officer on matters of job safety, and shall be responsible for ensuring the health and safety of on site personnel.

(b) Paragraph 01 D 02, revise as follows:

(1) Replace paragraph 01.D.02c with the following:  
"c. Property damage in excess of \$2,000.00."

(2) Add new paragraph d as follows:  
"An injury resulting in a lost workday, not including the day of injury."

## 1.7 COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS.

In performing work under this contract, the Contractor shall comply with all relevant Federal, state and local statutes, ordinances, laws and regulations.

## 1.8 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15 31 OCT 89)

This Paragraph specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE entitled “Default (Fixed Price Construction).” In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

1.8.1 The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

1.8.2 The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

1.8.3 The following schedule of monthly anticipated adverse weather days is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor’s progress schedule must reflect these anticipated adverse weather days in all weather dependent activities.

### MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON (5) DAY WORK WEEK

<u>IAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>	
13	11	11	8	5	4	2	3	4	8	12	14	Astoria, OR

1.8.4 Upon acknowledgement of the notice to proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather days must prevent work on critical activities for 50 percent or more of the contractor’s scheduled work day.

1.8.5 The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph 1.8.3 above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled “Default (Fixed Price Construction)”.

#### 1.9 MOBILIZATION AND DEMOBILIZATION, PAYMENT ITEM NOS. 0001

(a) All costs connected with mobilization and demobilization will be paid for at the Contract lump sum price for this item in accordance with percentages specified under Section 01270 MEASUREMENT AND PAYMENT. All costs connected with any Contracting Officer directed interim mobilization and demobilization will also be paid in accordance with the specified percentage.

(b) In the event the Contracting Officer considers that the amount in this item which represents mobilization, does not bear a reasonable relation to the cost of the work in this Contract, the Contracting Officer may require the Contractor to produce cost data to justify this portion of the bid. Failure to justify such price to the satisfaction of the Contracting Officer will result in payment of actual mobilization costs, as determined by the Contracting Officer at the completion of mobilization, and payment of the remainder of this item in the final payment under this Contract. The determination of the Contracting Officer is not subject to appeal.

#### 1.10 IDENTIFICATION OF EMPLOYEES (1984 APR OCE):

The Contractor shall be responsible for furnishing an identification badge/card to each employee prior to the employees work on-site, and for requiring each employee engaged on the work to display identification credentials in accordance with Section 01145 SITE-SPECIFIC SUPPLEMENTARY REQUIREMENTS. All prescribed identification shall immediately be delivered to the Contracting Officer, for cancellation upon the release of the employee.

#### 1.11 ENVIRONMENTAL LITIGATION:

(a) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(b) The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantially or procedurally, the effect of the work on the environment.

## 1.12 COMPLIANCE WITH DAVIS-BACON ACT

### 1.12.1 Contractor POC

Within 14 days after award of the contract, the Contractor shall designate a point of contact (POC) within their organization who will be responsible for the Davis-Bacon Act Labor Program for the Contractor and all subcontractors under this contract as required by the Contract Clauses and FAR 52.222 (reference also [www.nws.usace.army.mil/davisbacon/davis.htm](http://www.nws.usace.army.mil/davisbacon/davis.htm)).

### 1.12.2 Responsibilities

The designated Contractor POC shall be responsible for Davis-Bacon Act Labor Program activities including, but not limited to:

- Documentation and record keeping
- Submittal and accuracy of certified payrolls
- Submittal of required labor forms including requests for additional classifications and rates, Statements and Acknowledgement, etc.
- Posting of the wage determination, approved additional classifications and rates, labor and EEO posters
- Coordination with the Contracting Officer's Labor Program POC

Prior to submittal to the Government, payrolls shall be reviewed for compliance to all applicable labor standards, to include, but not be limited to the following items: correct wage rates, correct overtime classification and pay, misclassification of workers for work actually performed, apprentice to journeyman ratios, and registration of apprentice. Corrective actions shall be taken as necessary to ensure Contractor compliance with applicable contract and FAR clauses.

### 1.12.3 Certification

The Contractor POC shall provide a signed certification stating the following: "I certify that the submitted items being forwarded have been reviewed in detail and are correct and in strict conformance with the Labor Standards of the contract except as otherwise stated."

## 1.13 MINIMUM INSURANCE COVERAGES AND REQUIREMENTS

### 1.13.1 Limits Required

The insurance coverages required herein shall be maintained throughout the term of this contract. The Contractor shall carry the kinds of insurance and minimum limits of liability as required in the Schedule below.

## INSURANCE SCHEDULE

a. Commercial General Liability

General Aggregate \$2,000,000  
Products/Completed Operations Aggregate \$2,000,000  
Each Occurrence Limit \$1,000,000  
Personal-Advertising Injury \$1,000,000  
Fire Damage (Any One Fire) \$1,000,000  
Medical Payments (Any One Person) \$500,000  
Stop Gap Liability \$1,000,000

b. Automobile Liability

Bodily Injury/Property Damage (Each Accident) \$1,000,000

c. Worker's Compensation

Coverage A (Workers' Compensation) - Show State of Oregon Number

d. Umbrella Liability

Each Occurrence Limit \$1,000,000  
General Aggregate Limit \$1,000,000  
Products/Completed Operations Aggregate \$1,000,000

e. Professional Liability (If required)

Each Occurrence/Incident/Claim \$1,000,000  
Aggregate \$1,000,000

f. Pollution Liability (If required) To Apply on a Per Project Basis

Per Loss \$1,000,000  
Aggregate \$1,000,000

### 1.13.2 Certification of Insurance

Before commencing work under this Contract, the Contractor shall certify to the CO in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective:

- a. for such period as the laws of the State in which this Contract is to be performed prescribe; or
- b. until 30 calendar days after the insurer or the Contractor gives written notice to the CO, whichever period is longer.



#### 1.13.3 Insurance Document Maintenance

The Contractor shall insert the substance of this clause, including this paragraph 1.13.3, in subcontracts under this Contract that require work on this project and shall require subcontractors to provide and maintain the insurance required in the Schedule or elsewhere in the Contract. The Contractor shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the CO upon request.

PARTS 2 AND 3 NOT USED

END OF SECTION

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## **SECTION 01145**

### **SITE-SPECIFIC SUPPLEMENTARY REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.1 CONDUCT OF WORK**

###### **1.1.1 Coordination**

Coordination with agencies, other on-site contractors, and ongoing operations along Cathlamet Bay, shall be made through the Contracting Officer (CO) to assist the Contractor to perform the work with a minimum of interference and inconvenience. The project site is located on property occupied by active facilities. All such activities use the main entry gate for access.

###### **1.1.2 Keys/Cardkeys**

When keys are required for access to facilities on this contract, they shall be obtained through the CO.

1.1.2.1 The Contractor shall be responsible for Government-owned keys issued for access to facilities or areas pertinent to this contract.

1.1.2.2 Upon completion of the work in an area, or upon request of the CO, the key or keys relevant to the completed areas shall be returned.

1.1.2.3 Should the Contractor lose a key:

- a. The CO shall be notified, in writing, within 3 working days after the loss is discovered; and
- b. Should the key not be found before final acceptance, the final contract payment shall be reduced by \$100 for each key not returned.

###### **1.1.3 Work Hours**

Work hours in the project area shall be 7:00 a.m. to 6:00 p.m. daily, Monday through Friday, excluding holidays. Requests for alternate work schedules may be considered, but must be approved by the CO. Alternate work schedules may not be approved if a Government quality assurance inspector is not available to be on site during the proposed work hours.

##### **1.2 GENERAL ACCESS REQUIREMENTS**

The project site area is presently secured by fences and limited-access gates.

### 1.2.1 Entry Gate

The Site is within a fenced area and access is controlled at the gate from North Tongue Point Road, and landfill access is controlled at the gate at the interior access road.

### 1.2.2 Irregular or Non-Routine Access

Access on a regular basis and during other than established working hours will require prior approval by the CO. Irregular or non-routine access of Contractor personnel to the controlled areas during nonduty hours may be granted by the CO's designated representative.

### 1.2.3 Maintenance of Access

The Contractor shall not obstruct or interfere with access by others to existing facilities adjacent to the project site during the work under this Contract.

### 1.2.4 Vehicle Parking

The Contractor's vehicles shall only park in approved areas in accordance with the parking plan, submitted as part of the Site Plan in accordance with Section 01500 TEMPORARY CONSTRUCTION FACILITIES and approved by the CO.

## 1.3 COORDINATION AND COOPERATION WITH OTHER CONTRACTORS

### 1.3.1 Other Work in the Vicinity of or Adjacent to Project Site

Work by others may be performed in the vicinity of or adjacent to the project site in concurrence with the scheduled performance of Work under these Contract Documents. The Contractor shall coordinate construction work with Washington North Tongue Point Group and other contractors to minimize conflicts and to maintain a cooperative effort in completion of the Work. The primary point of contact for Washington North Tongue Point Group is Jennifer Paulson, telephone (503) 325-6407, fax (503) 325-4093, at the following address:

Washington North Tongue Point Group  
Route 5, Hangar 3  
Astoria, OR 97103

## 1.4 CONSTRUCTION SCHEDULE REQUIREMENTS

### 1.4.1 Schedule

The work shall be planned, scheduled, and performed in phases to complete the work within the requirements of these contract documents and the requirements of appropriate Federal, state, and

local agencies. Scheduling shall conform to the requirements in Section 01320 PROJECT SCHEDULE. The proposed sequence of Phase I work is:

- a. Pre-construction work plans and submittals
- b. Mobilization of personnel, equipment, materials, and supplies
- c. Site preparation
- d. Access/haul roads
- e. Utilities
- f. Temporary LNAPL collection and storage system
- g. Preload the landfill surface in five sequential sections
- h. Cleanup and demobilization

#### 1.4.2 Milestones

In conjunction with the completion schedule under Section 00800, paragraph SC-1, the Contractor shall incorporate the following milestone into the work sequence:

- a. The Remedial Action Management Plan (RAMP), or sections of the RAMP, must be approved prior to conducting on-site work for which the approval(s) apply.
- b. The first preload stockpile shall be placed no later than 75 calendar days after Notice to Proceed.
- c. Each preload shall surcharge the landfill for a maximum of 60 calendar days, and 5 calendar days are preload stockpile relocation.
- d. The total preload period following placement of the first preload stockpile and including movement of stockpiles from one stage to the next is 320 calendar days.

#### 1.4.3 Constraints

The following special constraints have been identified as having an impact on the performance of the Work. It is not intended to be a comprehensive list of constraints that will result from the execution of the Work, but as an aid to the Contractor in development of schedules and in executing the Work. Additional constraints may exist or develop as a result of required Work execution or Contractor's proposed work methods or sequence. In any event, the Contractor is responsible for compliance with the requirements of the various specification sections and the work procedures and protection requirements contained therein and establishing all constraints associated with the Work execution and incorporating them into Work schedules and proposed construction activities.

- a. Work plan must be approved prior to major construction, unless specific permission is received in writing from the CO.

- b. Erosion and sediment control measures must be in place prior to major construction.
- c. Construction of permanent access road upgrades and initial temporary access haul roads must be completed prior to major construction.
- d. No work shall be conducted lower than the 10-foot MLLW elevation without prior approval from the CO.
- e. The area outside of the easement is owned by Washington North Tongue Point Group. Work in any areas outside of the easement must be coordinated with and approved by the CO and Washington North Tongue Point Group.
- f. No work shall be conducted in any wetlands shown on the Drawings and restricted areas unless coordinated with and approved by the CO.

## 1.5 PERSONNEL IDENTIFICATION

### 1.5.1 Employee Listing

The Contractor shall submit a complete listing of Contractor personnel, including job title and identification credential number, who will be working on the project. This listing shall be updated as needed to ensure that the Government has been notified of any changes of Contractor Personnel in advance of new personnel engaging in work on the project. The Government will allow access to the controlled areas of only the Contractor Personnel authorized in advance and included on the employee listing.

### 1.5.2 Identification Credentials

Contractor personnel shall either be issued a photo identification card (ID) by the Contractor or agree to provide their individual vehicle driver's license as an appropriate identification credential. In either case, the identification number shall be included on the listing required above. If the Contractor determines to issue ID cards to its employees, the following information shall be included:

Contractor Identification and Card Number Indicating Employees:

- |   |                   |   |            |
|---|-------------------|---|------------|
| o | Full Name         | o | Height     |
| o | Current Address   | o | Weight     |
| o | Birth Date        | o | Hair Color |
| o | Recent Photograph | o | Eye Color  |

### 1.5.3 Employee Termination

If a Contractor employee resigns or is terminated the Contracting Officer, or designated representative shall be so notified at the earliest opportunity, but in no case later than the start of the succeeding workday.

### 1.5.4 Access Control

Contractor personnel shall be instructed to present identification credential upon request by proper authority as established by the Contracting Officer.

## 1.6 UTILITY OUTAGES

The Contractor shall coordinate utility outages with the CO at least 7 calendar days in advance. Outages shall be kept to a minimum, and any one outage shall not last more than 4 hours. Describe the reason, anticipated length of time, and areas affected by the outage in a written request. Provide temporary provisions for continuous power supply to critical existing facility components if requested by the CO.

Perform Work continuously during critical utility connections and changeovers, and as required to prevent lengthy interruption of utility service. The Contractor must have the permission of the CO prior to causing any interruption of utility service.

## 1.7 PROTECTION OF PROPERTY

In addition to requirements of the Contract Clauses, the Contractor shall protect all property, Government or private, within or in the vicinity of the work site. The Contractor shall ensure that it is not removed, damaged, destroyed, or prevented from its normal use unless so designated in the Contract Documents. All property adjacent to the work shall be protected including, but not be limited to, protection from construction generated dust, debris, water, excessive noise, and vibration. Property includes land, utilities, landscaping, markers and monuments, wells, buildings, structures, site and drainage improvements, whether shown on the Drawings or not.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

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## **SECTION 01240**

### **COST AND PERFORMANCE REPORT**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **U.S. ARMY CORPS OF ENGINEERS**

EP 1110-1-19.CEMP-RT	(1996) Technical Requirements for Specifications to Report HTRW Environmental Restoration Cost and Performance
ER 1110-3-1301	(1994) Cost Engineering Policy Requirements for Hazardous, Toxic, and Radioactive Waste Remedial Action Cost Estimate

##### **U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)**

EPA 542-B-98-007	(1998) Guide to Documenting and Managing Cost and Performance Information for Remediation Projects
EPA 542-B-94-013	(1994) Remediation Technologies Screening Matrix and Reference Guide
Directive: 9355.0-39FS	(1992) Remedial Action Report Documentation for Operable Unit Completion

##### **1.2 DESCRIPTION OF WORK**

The work shall consist of the preparation of a report containing cost and performance data from the Phase I Tongue Point Landfill Remedial Action project. A template Cost and Performance Report is included in EP 1110-1-19, Appendix A, and shall be utilized to comply with this specification. Only those requirements in this section that relate to actual work performed on this project are applicable. The Contracting Officer (CO) will make final determinations on which items of work must be reported.

### 1.2.1 Report Format

The report shall be prepared in accordance with EP 1110-1-19 and EPA 542-B-98-007 and meet all substantive requirements of a Remedial Action Report (EPA Directive 9355.0-39FS). The presentation requirements of the report shall be: (1) Word processing format: Word 6.0 or 7.0, 12 point font size, typeface; (2) Page layout: 8-1/2 x 11 inch (22 x 28 centimeter [cm]) size paper, 1-inch (2.5-cm) margins, portrait or landscape orientation, bold headings, footnotes, page numbering; (3) Tables and charts software: spreadsheets, groundwater modeling; (4) Computer file: the document shall also be presented in Hypertext Mark-up Language (HTML 2.0) saved as an ASCII file; PostScript Drawings shall be linked to document text.

### 1.2.2 Drawing Format

Drawings shall follow the same format, including software, as described in Section 01780 RECORD DRAWINGS. Drawings shall be in PostScript format.

### 1.2.3 Quality Control

A project-specific quality control program shall be developed to detail the procedures for preparation of the report and for correction of deficiencies. The Contractor shall arrange for conferences to coordinate the work or to sequence related work for sensitive and complex items as needed and as requested by the CO.

## 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

### SD-09 Reports

Cost and Performance Reports; GA.

Fifteen copies of the report upon completion of each of the following stages: Outline, Draft Report, and Final Report. The draft and final Cost and Performance Report shall be submitted as part of the draft and final Project Closeout Report in accordance with Section 01788 MAINTENANCE AND PROJECT CLOSEOUT.

### SD-18 Records

Report Format; GA.

ASCII file of report. File shall be provided to the CO and submitted as part of the RAMP in accordance with Section 01400 REMEDIAL ACTION MANAGEMENT PLAN.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.1 REPORT OUTLINE**

The report outline shall be in accordance with EP 1110-1-19.

#### **3.1.1 Executive Summary**

The Executive Summary shall contain a brief overview of the Cost and Performance Report. It shall include a brief description of the historical activities that generated the need for environmental restoration; a brief summary of the appropriate regulatory framework under which the remedial action is to occur, the date, number, and title of the decision document; and the cost breakdown for the complete remediation. The CO will provide the Contractor background information from existing reports upon request. Allow a minimum of 14 calendar days to produce this information.

#### **3.1.2 Site Information**

Information developed prior to the remedial action is included in Section 01115 SITE DESCRIPTION.

##### **3.1.2.1 Type of Action**

It shall be stated whether the remedial action to be performed is an entire site remediation or intermediate remedial project.

##### **3.1.2.2 Period of Operation**

The dates of remedial action completion and monitoring, operation, and maintenance shall be indicated in the report.

##### **3.1.2.3 Quantity of Material Treated During Application (Not Used)**

##### **3.1.2.4 Performance Objectives**

The goals associated with this project shall be shown in a bullet format.

##### **3.1.2.5 Site Logistics/Contacts**

The addresses and telephone numbers shall be listed for the Project Manager, Regulatory Agency Contacts, and Vendors involved in the remedial action activities.

### 3.1.3 Matrix and Contaminant Description

#### 3.1.3.1 Matrix Identification

The type of matrix treated shall be reported using the standard terminology contained in EP 1110-1-19.

#### 3.1.3.2 Site Geology/Stratigraphy

The site geology/stratigraphy narrative shall provide a description of the site soils and geology. This description shall include the areal and vertical (stratigraphy) variability in the soils, soil classifications, and particle-size distributions. Depth to groundwater, depth to bedrock, and thickness of overburden soil shall be included.

#### 3.1.3.3 Contaminant Properties

The properties (e.g., density, specific gravity, toxicity, flammability, boiling point, vapor point, etc.) of contaminants present at the project site shall be summarized.

#### 3.1.3.4 Nature and Extent of the Contaminants

Descriptions of location, nature, and extent of light non-aqueous phase liquids (LNAPL) contamination by text and/or appropriate Drawings shall be provided.

#### 3.1.3.5 Matrix Characteristics Affecting Cost or Performance

The measurement procedure used for each parameter shall be identified. Provide the measurement, the procedure to obtain the measurement, and the effect on cost and performance for each appropriate parameter in accordance with EP 1110-1-19.

### 3.1.4 Remediation Description

Remedial technologies shall be described using terminology from EPA 542-B-94-013 and EPA 542-B-98-007 or other approved similar terminology in areas where those documents are incomplete.

#### 3.1.4.1 Primary Remedial Technology Types

Primary remedial technology types shall be listed for each contaminant matrix using standard terminology and the listing of primary remedial technologies in EP 1110-1-19.

#### 3.1.4.2 Time Line

A tabular or Gantt chart form specifying the major tasks associated with the remediation shall be provided. This time line shall include key milestones such as site investigations, remedial

investigation report, feasibility study, remedial design, action memorandum, construction, post-closure monitoring, and maintenance. The time line shall begin at the onset of remedial investigations and terminate at completion of demobilization from the site. Information on preconstruction activity time lines will be provided by the CO. The projects critical path shall be designated on the time line.

#### 3.1.4.3 Key Design Criteria

A description of the key design criteria associated with the remedial action shall be provided in text and appropriate Drawings. This description shall include the landfill preloading activity and the temporary LNAPL collection and storage system. Drawings shall include the actual layout and sequence of the preloading activity and the LNAPL collection and treatment system, and other relevant features.

#### 3.1.4.4 Remediation System Operations

A completion Process Flow Diagram shall be provided in the report and shall include an overall schematic of the LNAPL collection and storage system. A description of system operations shall include personnel requirements for operating the system, the approach used to operate the system over the course of the remedial action, and the health and safety requirements including level of personal protective equipment required.

#### 3.1.4.5 Monitoring, Operation, and Maintenance Parameters Affecting Cost or Performance

A table presenting the major monitoring, operation, and maintenance parameters affecting cost and performance for the primary technologies and the values measured for each parameter shall be provided. Site-specific items such as quantity of LNAPL collected and other specific parameters that may affect the cost of operation shall be included in the report in accordance with EP 1110-1-19.

#### 3.1.5 Remediation Performance

##### 3.1.5.1 Remedial Action Data

The preloading survey and post preloading survey to measure settlement shall be reported. In addition, the quantity of LNAPL collected and disposed of shall also be reported. The number and type of data collected, management or reduction of data results, and the method number of the analysis shall be presented in a table. Data results shall be presented in tabular format.

##### 3.1.5.2 Data Assessment and Deviations from Standard Performance

The available removal data shall be described and discussed in terms of whether key design criteria or remediation performance goals were met. An evaluation of the landfill preloading activity and LNAPL collection, storage, and disposal activity shall be included in the report. The report shall

include a description of the design concerns, performance goals, and the performance criteria for the remedial action.

### 3.1.5.3 Inspection and Maintenance

This section shall discuss the inspection, operation, maintenance, and monitoring activities that will take place to ensure that the temporary LNAPL collection and storage system and stormwater control system are maintained in good working order.

### 3.1.6 Performance Data Quality

The narrative shall include overall assessment of the quality control of the available performance data. A brief description of the Contractor Quality Control Plan for the remediation effort shall include how checks were made on the sample analysis and interpretation, and a discussion of data interpretation.

### 3.1.7 Remediation Costs

The Contractor shall use the work breakdown structure specified in ER 1110-3-1301 to the third (subsystem) level, in conjunction with the standard descriptions, to document costs for activities directly attributed to the remedial actions; however, utilizing lower levels for each work breakdown structure is optional. The third (subsystem) level of detail shall be used for capturing the costs of primary remedial actions. Documentation of costs for before remedial activities shall be identified separately in the appropriate third-level remedial action work breakdown structure categories (i.e., Monitoring, Sampling, Testing, and Analysis). Post-construction operation and maintenance shall be identified separately using the O&M work breakdown structure. The documentation shall identify unit costs and number of units for each cost element, as specified in ER 1110-3-1301. Cost for activities directly attributed to the remedial action shall be shown as a total cost and as a calculated cost on a per unit of media basis. The second (system) and the third (subsystem) level cost elements for activities directly associated with the project are shown in the same referenced documents.

#### 3.1.7.1 HTRW - Remedial Action Work Breakdown Structure

The Contractor shall appropriately allocate invoices for materials, labor, supplies, services, and other costs. These costs shall be allocated to preliminary/preconstruction activities, construction activities, and post-construction and maintenance. These cost allocations shall include the sub-breakdown of cost elements. Costs should be further allocated between capital and operating costs.

#### 3.1.7.2 Preliminary/Preconstruction Activity Costs

The preliminary/preconstruction activity costs, including remedial action/engineering evaluation costs and remedial design costs will be provided by the CO, if required.

### 3.1.7.3 Construction Activity Costs

The costs associated with construction activities shall include mobilization and preparatory work (i.e., contractor selection/site preparation), site work (i.e., installation of the temporary LNAPL collection and storage system and preloading of the landfill site), and sampling and analysis of LNAPL collected.

### 3.1.7.4 Post-Construction Operations and Maintenance

The post-construction operation and maintenance costs shall include disposal of LNAPL, demobilization, and system monitoring, operation, and maintenance.

### 3.1.8 Regulatory/Institutional Issues

Approvals, licenses, and permits required for remediation shall be listed along with the direct cost and time lines associated with obtaining them.

### 3.1.9 Observations and Lessons Learned

#### 3.1.9.1 Cost Observations and Lessons Learned

Observations or lessons learned concerning cost for each remedial action shall be summarized. Key factors that affected project costs, and major items that caused final costs to differ from initial Contractor's bid shall be considered. Issues that are to be discussed shall include change orders, reclarifications, liquidated damages, variations in quantities, and unforeseen conditions. The narrative shall include recommendations for cost savings in future procurements (including technology advancements) of each remedial activity.

#### 3.1.9.2 Performance Observations and Lessons Learned

Observations or lessons learned concerning performance of each remedial action for this contract shall be summarized. Key factors that caused performance variations from contract requirements/cleanup standards shall be considered. Recommendations for improved performance in future applications shall be discussed.

#### 3.1.9.4 Other Observations and Lessons Learned

Observations or lessons learned from each remedial action not directly related to cost or performance shall be summarized.

### 3.1.10 References

This section shall include all references used in preparation of the cost and performance report.

**END OF SECTION**



## **SECTION 01250**

### **MODIFICATION PROCEDURES**

#### **PART 1 GENERAL**

##### **1.1 PROPOSED PROJECT MODIFICATIONS**

Price proposals for proposed modifications shall be submitted in accordance with the requirements of the Contract Clause MODIFICATION PROPOSALS - PRICE BREAKDOWNS. If change order work impacts or delays other unchanged contract work, the costs of such impacts or delays shall be included in the proposals and separately identified. Additional instructions for submitting price proposals can be found in NPSP-415-1-1, INSTRUCTION AND INFORMATION FOR CONTRACTORS, a copy of which will be furnished to the Contractor at the Preconstruction Conference. For information applicable to equipment rates used in contract modifications, refer to Section 00800 SPECIAL CLAUSES, clause EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

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## **SECTION 01270**

### **MEASUREMENT AND PAYMENT**

#### **PART 1 GENERAL**

##### **1.1 GENERAL**

The contract price shall constitute full compensation for furnishing all plant, labor, materials, appurtenances, and incidentals and performing all operations necessary to construct and complete the work in accordance with these specifications and the applicable drawings, including surveying performed by the Contractor. Payment shall be considered as full compensation, notwithstanding that minor features may not be mentioned herein. Material and work paid for under one item will not be paid for under any other item. No separate payment will be made for the work, services, or operations required by the Contractor, as specified in DIVISION 1, GENERAL REQUIREMENTS, to complete the project in accordance with these specifications; all costs thereof shall be considered as incidental to the work. Items of work for which no separate payment is provided shall be considered as incidental to the performance of the work with which it is associated.

##### **1.2 MEASUREMENT (GENERAL)**

###### **1.2.1 Lump Sum Items**

Items measured as a lump sum will be measured for payment as a complete job in the locations indicated. This measurement includes all incidental work and materials such as fittings, fasteners, electrical materials, and O&M manuals that are necessary to make a complete job. All costs for items of work that are not specifically mentioned to be included in a particular lump sum or unit price payment item shall be included in the listed lump sum item most closely associated with the work involved. Unless the payment item paragraph makes a specific exception of any item, incidental items will not be measured under any other item even though there is another listing for the work or material.

###### **1.2.2 Unit Quantity Items**

Items measured as a unit quantity will be measured for payment by the actual quantity of material installed in place to make a complete job. Quantity surveys shall be performed in accordance with SPECIAL CLAUSE SC-9 “Quantity Surveys” and Section 01720 FIELD ENGINEERING.

### 1.3 PAYMENT ITEMS

#### 1.3.1 Item 0001 Mobilization and Demobilization (Base Item)

##### 1.3.1.1 Payment

Payment will be made at 60 percent of the lump sum contract price for mobilization when complete and at 40 percent of the lump sum contract price for demobilization when complete, as defined in Section 01140 Paragraph “Payment For Mobilization And Demobilization,” payment of which shall constitute full compensation for Item 0001, complete.

#### 1.3.2 Item 0002 Remedial Action Management Plan (RAMP)

##### 1.3.2.1 Payment

Payment will be made at the lump sum contract price for all work required to prepare the RAMP in accordance with Section 01400 REMEDIAL ACTION MANAGEMENT PLAN. The price shall include, but not be limited to, all costs to prepare a Draft RAMP, address USACE comments and produce a Final RAMP for all work plans listed in Section 01400, all reproduction and costs associated with submitting the required number of copies, attend all required conferences and meetings and produce minutes required in the Specifications and all other work described in Section 01400 of the Specifications to produce a RAMP approved by USACE within the specified time frame. No additional payment will be made to the Contractor for delays or additional costs incurred due to the Contractor’s failure to meet the criteria and schedule specified for preparation of a complete RAMP.

#### 1.3.3 Item 0003 All Work for Phase I Tongue Point Landfill Remedial Action, except for Item Nos. 0001, 0002, and 0004 through 0015 (Base Item)

##### 1.3.3.1 Payment

Payment will be made at the lump sum contract price for all work required to preload the landfill, except for Item Nos. 0001, 0002, and 0004 through 0016. The price shall include, but not be limited to, all costs for temporary erosion control and sediment control measures; clearing and grubbing; site preparation; temporary access roads and ramps (permanent access road improvements are included in item 0004), developing Contractor staging and work areas; providing temporary facilities, removing and relocating the existing fence; setting-up and maintaining a local reference grid; all survey work not incidental to other base items, removing and disposing of the existing gate; providing a new landfill entrance gate; and all other work not included in other base items in this section.

### 1.3.4 Item 0004 Construct Access Roads (Base Item)

#### 1.3.4.1 Payment

Payment will be made at the lump sum contract price for materials, equipment, and labor associated with furnishing, transporting, stockpiling (if applicable), placing material for the permanent landfill access roads and stabilized construction entrance, including but not limited to road subgrade preparation, placing the reinforcement geotextile fabric and the stabilized base course aggregate for the access road, and placing quarry spalls for the stabilized construction entrance.

### 1.3.5 Item 0005 Abandon Monitoring Wells (Base Item)

#### 1.3.5.1 Payment

Payment will be made at the lump sum contract price for all materials, equipment, labor, and reporting associated with abandonment of existing monitoring wells indicated on the Drawings.

### 1.3.6 Item 0006 Install Permanent Utilities (Base Item)

#### 1.3.6.1 Payment

Payment will be made at the lump sum contract price for all materials, equipment, labor, and coordination with local utility companies associated with installing permanent electricity, telephone, and water utilities to the Tongue Point Landfill site (Site), including, but not limited to, service application and associated fees, preparing the utility trenches; installing piping and fittings; preparing the foundation and installing the concrete pad for the compressor building; installing the compressor building; and installing the utility connections.

### 1.3.7 Item 0007 Subgrade Preparation (Base Item)

#### 1.3.7.1 Payment

Payment will be made at the lump sum contract price for costs associated with subgrade preparation for the landfill area indicated on the Drawings, including, but not limited to, conducting the initial site survey; regrading the existing surface; removing the existing rock revetment; incorporating chipped and waste material from clearing and grubbing, the light non-aqueous phase liquid (LNAPL) collection trench and fence, and gate removal; importing and spreading a thin layer of imported sand/gravel soil; and conducting post-subgrade preparation site survey prior to preloading the landfill.

### 1.3.8 Item 0008 Install LNAPL Collection Trench

#### 1.3.8.1 Payment

Payment will be made at the contract unit price for materials, equipment, and labor associated with furnishing installation of the LNAPL collection trench, including, but not limited to, excavation of the trench, installing trench backfill, installing the LNAPL containment geomembrane, installing the geotextile fabric over the trench drain rock, and installing general fill over the geotextile fabric. This item does not include installing the sumps covered under Paragraph 1.3.9 Item 0009 Install LNAPL Sumps, Pumps, Controls, and Storage Tanks (Base Item).

#### 1.3.8.2 Measurement

The LNAPL collection trench will be measured by square feet of trench completed computed as trench length times depth along the trench centerline. Measurement and payment shall be based on completed work performed in accordance with the drawings and specifications. Payment for trench excavation, as so measured, shall constitute full payment for excavation and backfilling including placement of the trench backfill materials. Backfill materials included are the trench backfill, general fill (trench cover soil) and the associated grout/concrete surface seal and backfill around the stainless steel collection sumps. Trench excavation shall also include the additional width at the collection sumps, the furnishing, placing and removal of sheeting and bracing, pumping and bailing, and all incidentals necessary to complete the work required by this section.

#### 1.3.8.3 Unit of Measure

Unit of measure: square feet.

### 1.3.9 Item 0009 Install LNAPL Sumps, Pumps, Controls, and Storage Tanks (Base Item)

#### 1.3.9.1 Payment

Payment will be made at the lump sum contract price for all materials, equipment, and labor associated with installing the LNAPL sumps, pumps, controls, and storage tanks, including, but not limited to, proving a stable subgrade foundation and preparing the stabilized aggregate base course for the storage tanks, installing the sumps and storage tanks; installing LNAPL collection pumps, and installing the air line, piping, accessories, and fittings.

### 1.3.10 Item 0010 Procure, Load, Haul, and Place Preload Fill No. 1 (Base Item)

#### 1.3.10.1 Payment

Payment will be made at the contract unit price for costs associated with the procurement, loading, hauling, and placement of fill for preload sequence number 1. The price shall include all materials, equipment, and labor necessary to install settlement plates; place the separator geotextile beneath each preload area; modify and protect existing wells; procure,

load, and haul fill to the Site; move and place the preload fill; and cover the preload fill with the rolled erosion control product.

#### 1.3.10.2 Measurement

Measurement will be based on the survey quantity of the preload fill in place for sequence number 1 at the completion of placement.

#### 1.3.10.3 Unit of Measure

Unit of measure: cubic yard in place.

### 1.3.11 Item 0011 Place Preload Fills Nos. 2 through 5 (Base Item)

#### 1.3.11.1 Payment

Payment will be made at the lump sum contract price for costs associated with moving preload fills for stockpile sequence numbers 2 through 5. The price shall include all materials, equipment, and labor necessary to install settlement plates; place the separator geotextile beneath each preload area; modify and protect existing wells, boom anchors, and boom tethers; move and place the preload fill; and cover the preload fill with the rolled erosion control product.

### 1.3.12 Item 0012 Record Drawings

#### 1.3.12.1 Payment

Payment will be made at the lump sum contract price for all work required to produce Preliminary and Final Record Drawings in accordance with Section 01780 RECORD DRAWINGS, including all surveying, record keeping, deliverables, reproduction, electronic files, and other work required for Record Drawings in the Specifications. No partial or total payment will be made for this item until the as-built drawings, both marked up blue prints and electronic files are fully approved by the Government (A or B action) and all copies of approved drawings and electronic media received by the Government.

### 1.3.13 Item 0013 Operation and Maintenance During Construction (Base Item)

#### 1.3.13.1 Payment

Payment will be made at the lump sum contract price for costs associated with operation and maintenance of the Site from site mobilization through final inspection and construction completion, in accordance with Section 01788 MAINTENANCE AND PROJECT CLOSEOUT and other relevant sections including, but not limited to, inspection, maintenance and repairs of landfill access roads; bi-weekly site inspections and maintenance of erosion and sediment control measures, LNAPL collection and storage system, potential release of LNAPL seeps, and the existing boom; and all necessary repairs up to the date of construction completion. Additional operations and maintenance following construction

completion will be paid under base item 0015 Operations and Maintenance Following Construction.

#### 1.3.14 Item 0014 Remove, Transport, and Dispose of Tank Contents (Optional Item)

##### 1.3.14.1 Payment

Payment will be made at the contract unit price for costs associated with disposal of the LNAPL storage tank contents, and includes, but is not limited to, testing associated with appropriate disposal, preparing documentation and reporting; and removing, transporting, and disposing of offsite, including incineration of LNAPL.

##### 1.3.14.2 Measurement

Measurement will be based on volume disposed, as certified by the disposal service.

##### 1.3.14.3 Unit of Measure

Unit of measure: gallons (U.S.).

#### 1.3.15 Item 0015 Operations and Maintenance Following Construction

##### 1.3.15.1 Payment

Payment will be made at the contract unit price for costs associated with operations and maintenance of the site following the date of final inspection and construction completion, in accordance with the approved Final O&M Manual prepared in accordance with Section 01788 MAINTENANCE AND PROJECT CLOSEOUT, including but not limited to, inspection, maintenance and repairs of landfill access roads; bi-weekly site inspections and maintenance of erosion and sediment control measures, LNAPL collection and storage system, potential releases of LNAPL seeps and maintaining the existing boom; and all necessary repairs following construction completion.

##### 1.3.15.2 Measurement

Measurement will be based on time over which the operation and maintenance is conducted.

##### 1.3.15.3 Unit of Measure

Unit of measure: month



## 1.4 CLEANUPS/REMOVALS OF SPILLS AND CONTAMINATION

No payment will be made for materials, equipment and labor for cleanups/removals of spills and contamination due to Contractor negligence or failure to follow proper work operations, Contractor equipment failures, or booms and containment equipment required as a general operating constraint for routine contract operations under this contract.

## 1.5 PAYMENT INVOICE

### 1.5.1 Progress Payment Invoice

Requests for payment shall be submitted in accordance with Federal Acquisition Regulations (FAR) Subpart 32.9, entitled "PROMPT PAYMENT", and Paragraphs 52.232-5 and 52.232-27, entitled "Payments Under Fixed-Price Construction Contracts", and "Prompt Payment for Construction Contracts", respectively. In addition each request shall be submitted in the number of copies and to the designated billing office as shown in the Contract.

(a) When submitting payment requests, the Contractor shall complete Blocks 1 through 12 of the "PROGRESS PAYMENT INVOICE" Form as directed by the Contracting Officer. (A sample form is attached at the end of this Technical Specification Section.) The completed form shall then become the cover document to which all other support data shall be attached.

(b) One additional copy of the entire request for payment, to include the "PROGRESS PAYMENT INVOICE" cover document, shall be forwarded to a separate address as designated by the Contracting Officer.

(c) The Contractor shall submit with each pay request, a list of subcontractors that have worked during that pay period. The listing shall be broken down into weeks, identifying each subcontractor that has worked during a particular week, and indicate the total number of employees that have worked on site for each subcontractor for each week. The prime Contractor shall also indicate the total number of employees for its on-site staff for each week.

## **PART 2 PRODUCTS (NOT APPLICABLE)**

## **PART 3 EXECUTION (NOT APPLICABLE)**

# **PROGRESS PAYMENT INVOICE**

See Federal Acquisition Regulations (FAR) 32.900, 52.232-5, & 52.232-27

1. PROJECT AND LOCATION		2. DATE	
3. CONTRACTOR NAME AND ADDRESS (Must be the same as in the Contract)		4. CONTRACT NO.	
		5. INVOICE NO.	
6. DESCRIPTION OF WORK		7. PERIOD OF PERFORMANCE  From:  To:	
8. DISCOUNT TERMS			
9. OFFICIAL TO WHOM PAYMENT IS TO BE FORWARDED Name: Title: Phone: ( ) -		10. OFFICIAL TO BE NOTIFIED OF DEFECTIVE INVOICE Name: Title: Phone ( ) -	
<b>11. CERTIFICATION: I hereby certify, to the best of my knowledge and belief, that</b> <b>(1) The amounts requested are only for the performance in accordance with the specifications, terms, and conditions of this contract;</b> <b>(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of Chapter 39 of Title 31, United States Code; and</b> <b>(3) This request for progress payment does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.</b>			
_____ (Signature)		_____ (Title)	
		_____ (Date)	
12. OTHER INFORMATION OR DOCUMENTATION required by Contract. Provide two (2) copies of each (check and attach if applicable):  <input type="checkbox"/> Updated Progress Chart/Schedule <input type="checkbox"/> Progress Narrative <input type="checkbox"/> Certified Payrolls (submitted weekly) <input type="checkbox"/> Safety Exposure Report <input type="checkbox"/> Updated Submittal register <input type="checkbox"/> Progress Photos <input type="checkbox"/> Subcontractor/Employee Listings		(FOR GOVERNMENT USE ONLY)  Retainage: ____% Amt: \$_____  Withholdings: \$ _____  Reason: _____ _____ _____  Following items are current: As-Built _____ Yes _____ No O & M Manuals _____ Yes _____ No 1354 Data _____ Yes _____ No Submittal Register _____ Yes _____ No	

## SECTION 01312

### QUALITY CONTROL SYSTEM (QCS)

#### 1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

##### 1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

##### 1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01320, PROJECT SCHEDULE, Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

#### 1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor,

the Government can provide QCS on (3-1/2 inch) high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

### 1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

#### **Hardware**

- IBM-compatible PC with 200 MHz Pentium or higher processor
- 32+ MB RAM
- 4 GB hard drive disk space for sole use by the QCS system
- 3 1/2 inch high-density floppy drive
- Compact disk (CD) Reader
- Color monitor
- Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.
- Connection to the Internet, minimum 28 BPS

#### **Software**

- MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)
- Word Processing software compatible with MS Word 97 or newer
- Internet browser
- The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.
- Electronic mail (E-mail) compatible with MS Outlook

## 1.4 RELATED INFORMATION

### 1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

### 1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

## 1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

## 1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

### 1.6.1 Administration

#### 1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

#### 1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided

in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

#### 1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

#### 1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

#### 1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

### 1.6.2 Finances

#### 1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

#### 1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

### 1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

#### 1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

#### 1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

#### 1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

#### 1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

#### 1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

#### 1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

#### 1.6.4 Submittal Management

The Contractor shall provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

#### 1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts", or Section 01320, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320, PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

#### 1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

### 1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.



## 1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

### 1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

### 1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

### 1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

## 1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

## 1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

END OF SECTION

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## **SECTION 01320**

### **PROJECT SCHEDULE**

#### **PART 1 GENERAL**

##### **1.1 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. Timing of the project schedule submittals shall conform to paragraph 3.4 PROJECT SCHEDULE SUBMISSIONS. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

##### **SD-07 Schedules**

Preliminary project schedule, two copies; GA.

Schedule submitted 20 calendar days after the Notice to Proceed.

Initial project schedule, two copies; GA.

Schedule submitted with the RAMP, as described in Section 01400 REMEDIAL ACTION MANAGEMENT PLAN.

Gantt Chart

Activity No. Sort

Predecessor/successor listing

3.5-inch (89-millimeter [mm]), 1.44 megabyte (MB) Disk with schedule data in Standard Data Exchange Format (SDEF)

Activity Code Dictionary

Periodic schedules updates, monthly updates, two copies; FIO.

3.5-inch (89-mm), 1.44 MB Disks in SDEF

Gantt Chart with activity percent complete (upon request of CO)

Narrative

Activity No. Sort

Cash Flow Report (S-Curve) (only for final schedule)

SD-08 Statements

Qualifications; GA.

Documentation showing qualifications of personnel preparing schedule reports.

## 1.2 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports. This person shall have previously created and reviewed computerized schedules. Qualifications of this individual shall be submitted to the Contracting Officer (CO) for review with the Preliminary Project Schedule submission.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### 3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS, a Project Schedule as described below shall be prepared. The scheduling of construction shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and suppliers working on the project should also contribute in developing and maintaining an accurate Project Schedule. The Project Schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of all progress payments.

### 3.2 BASIS FOR PAYMENT

The schedule shall be the basis for measuring Contractor progress. Lack of an approved schedule or scheduling personnel shall result in an inability of the CO to evaluate Contractor progress for the purposes of payment. Failure of the Contractor to provide all information, as specified below, shall result in the disapproval of the entire Project Schedule submission and the inability of the CO to evaluate Contractor progress for payment purposes. In the case where Project Schedule revisions have been directed by the CO and those revisions have not been included in the Project Schedule, then the CO may hold retainage up to the maximum allowed by contract, each payment period, until revisions to the Project Schedule have been made.

### 3.3 PROJECT SCHEDULE

The computer software system utilized by the Contractor to produce the Project Schedule shall be capable of providing all requirements of this specification including electronic deliverables in SDEF format. Failure of the Contractor to meet the requirements of this specification shall result in the

disapproval of the schedule. Manual methods used to produce any required information shall require approval by the CO.

### 3.3.1 Use of the Critical Path Method

The Critical Path Method (CPM) of network calculation shall be used to generate the Project Schedule. The Contractor shall provide the Project Schedule in Precedence Diagram Method (PDM).

### 3.3.2 Level of Detail Required

With the exception of the preliminary and initial schedule submission, the Project Schedule shall include an appropriate level of detail. Failure to develop or update the Project Schedule or provide data to the CO at the appropriate level of detail, as specified by the CO, shall result in the disapproval of the schedule. The CO will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the Project Schedule.

#### 3.3.2.1 Activity Durations

Contractor submissions shall be required to follow the direction of the CO regarding reasonable activity durations. Reasonable durations are those that allow the progress of activities to be accurately determined between payment periods. A rule of thumb, that the Contractor should use, is that less than 2 percent of all non-procurement activities' Original Durations shall be greater than 20 calendar days.

#### 3.3.2.2 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over 90 calendar days. Examples of procurement process activities include, but are not limited to, submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

#### 3.3.2.3 Government Activities

Government and other agency activities that could impact progress shall be shown. These activities include, but are not limited to, approvals, inspections, utility tie-in, Government Furnished Equipment (GFE) and notice to proceed for phasing requirements.

#### 3.3.2.4 Responsibility

All activities shall be identified in the project schedule by the party responsible to perform the work. Responsibility includes, but is not limited to, the subcontracting firm (at the lowest tier), Contractor work force, or Government agency performing a given task. Activities shall not belong to more than

one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

#### 3.3.2.5 Work Areas

All activities shall be identified in the project schedule by the work area in which the activity occurs if requested by the CO. Activities shall not be allowed to cover more than one work area. The work area of each activity shall be identified by the Work Area Code.

#### 3.3.2.6 Modification or Claim Number

Any activity that is added or changed by contract modification or used to justify claimed time shall be identified by a modification (i.e., mod) or claim code that changed the activity. Activities shall not belong to more than one modification or claim item. The modification or claim number of each activity shall be identified by the Mod or Claim Number.

#### 3.3.2.7 Bid Item

All activities shall be identified in the project schedule by the Bid Item to which the activity belongs. An activity shall not contain work in more than one bid item. The bid item for each appropriate activity shall be identified by the Bid Item Code.

#### 3.3.2.8 Category of Work

If requested by the CO, all Activities shall be identified in the project schedule according to the category of work that best describes the activity. Category of work refers, but is not limited to, to the procurement chain of activities including such items as submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing. The category of work for each activity shall be identified by the Category of Work Code.

#### 3.3.2.9 Feature of Work

If requested by the CO, all activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project. The feature of work for each activity shall be identified by the Feature of Work Code.

#### 3.3.2.10 Critical Activities

The following activities shall be listed as separate line activities on a Contractor's project schedule:

- a. Submission and approval of mechanical/electric layout drawings
- b. Submission and approval of Operation and Maintenance (O&M) manuals
- c. Submission and approval of record drawings

- d. Submission and approval of data and installed equipment lists
- e. Any other systems testing
- f. Prefinal inspection
- g. Correction of punchlist from prefinal inspection
- h. Final inspection

### 3.3.3 Scheduled Project Completion

The schedule interval shall extend from Notice to Proceed (NTP) to the contract completion date.

#### 3.3.3.1 Project Start Date

The schedule shall start no earlier than the date that the NTP was acknowledged. The Contractor shall include as the first activity in the project schedule an activity called “Start Project.” The “Start Project” activity shall have an “Early Start” constraint: a constraint date equal to the date that the NTP was acknowledged, and a zero-day duration.

#### 3.3.3.2 Constraint of Last Activity

Completion of the last activity in the schedule shall be constrained by the contract completion date. Calculation on project updates shall be such that if the early finish of the last activity falls after the contract completion date, then the float calculation shall reflect a negative float on the critical path. The Contractor shall include as the last activity in the project schedule an activity called “End Project.” The “End Project” activity shall have a “Late Finish” constraint: a constraint date equal to the completion date for the project, and a zero-day duration.

#### 3.3.3.3 Early Project Completion

In the event the project schedule shows completion of the project prior to the contract completion date, the Contractor shall identify those activities that have been accelerated and/or those activities that are scheduled in parallel to support the Contractor’s “early” completion. Contractor shall specifically address each of the activities noted at every project schedule update period to assist the CO in evaluating the Contractor’s ability to actually complete the project prior to the contract period.

#### 3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

### 3.3.5 Default Progress Data Disallowed

Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual Start and Finish dates on the CPM schedule shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the Actual Start and Finish dates on the Daily Quality Control report for every in-progress or completed activity and to insure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's schedule and the inability of the CO to evaluate Contractor progress for payment purposes.

### 3.3.6 Out-of-Sequence Progress

Activities that have posted progress without predecessors being completed (Out-of-Sequence Progress) shall be allowed only by the case-by-case approval of the CO. The CO may direct that changes in schedule logic be made to correct any or all out-of-sequence work.

### 3.3.7 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

## 3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below. The data disk, reports, and network diagrams required for each submission are contained in paragraph 3.7.2 SUBMISSION REQUIREMENTS.

### 3.4.1 Preliminary Project Schedule Submission

The Preliminary Project Schedule, defining the Contractor's planned operations for the first 60 calendar days shall be submitted for approval within 20 calendar days after NTP is acknowledged. The approved preliminary schedule shall be used for payment purposes not to exceed 60 calendar days after NTP.

### 3.4.2 Initial Project Schedule Submission

The Initial Project Schedule shall be submitted with the RAMP for approval within 45 calendar days after NTP. The schedule shall provide a reasonable sequence of activities that represent work through the entire project and shall be at a reasonable level of detail.

### 3.4.3 Periodic Schedule Updates

Based on the result of progress meetings, specified in "Periodic Progress Meetings," the Contractor shall submit periodic schedule updates. These submissions shall enable the CO to assess



Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the CO or authorized representative, is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made.

### 3.4.4 Standard Activity Coding Dictionary

The Contractor shall submit, with the Initial Project Schedule, a coding scheme that shall be used throughout the project for all activity codes contained in the schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a Responsibility Code Value, "ELE", may be identified as "Electrical Subcontractor." Activity code values shall represent the same information throughout the duration of the contract. Once approved with the Initial Project Schedule submission, changes to the activity coding scheme must be approved by the CO.

### 3.5 SUBMISSION REQUIREMENTS

The items as noted in paragraph 1.1 SUBMITTALS shall be submitted by the Contractor for the initial submission and every periodic project schedule update throughout the life of the project.

#### 3.5.1 Data Disks

Two data disks containing the project schedule shall be provided. Data on the disks shall be in the format specified in paragraph 3.10 NETWORK ANALYSIS SYSTEM (NAS) DATA.

##### 3.5.1.1 File Medium

Required data shall be submitted on 3.5-inch (89-mm) disks, formatted to hold 1.44 MB of data.

##### 3.5.1.2 Disk Label

A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Initial, Update, or Change), full contract number, project name, project location, data date, name and telephone number of person responsible for the schedule, and the version used to prepare the CPM.

##### 3.5.1.3 File Name

Each file submitted shall have a name related to either the schedule data date, project name, or contract number. The Contractor shall develop a naming convention that will insure that the names of the files submitted are unique. The Contractor shall submit the file naming convention to the CO for approval.

### 3.5.2 Narrative Report

A Narrative Report shall be provided with each update of the project schedule, if requested by the CO. This report shall be provided as the basis of the Contractor's progress payment request. The Narrative Report shall include: a description of activities along the critical path, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken.

### 3.5.3 Approved Changes Verification

Only project schedule changes that have been previously approved by the CO shall be included in the schedule submission. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

### 3.5.4 Schedule Reports

The format for each activity for the schedule reports listed below shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date, Total Float. Actual Start and Actual Finish Dates shall be printed for those activities in-progress or completed.

#### 3.5.4.1 Activity Report

A list of all activities sorted according to activity number. For completed activities the Actual Start Date shall be used as the secondary sort.

#### 3.5.4.2 Logic Report

A list of Preceding and Succeeding activities for every activity in ascending order by activity number and then sorted according to Early Start Date. For completed activities the Actual Start Date shall be used as the secondary sort.

#### 3.5.4.3 Total Float Report

A list of all activities sorted in ascending order of total float. Activities which have the same amount of total float shall be listed in ascending order of Early Start Dates.

#### 3.5.4.4 Earnings Report (Not Used)

#### 3.5.4.5 Cash Flow Report (Final schedule submitted only)

A report showing scheduled cost of work-in-place by week (tabular report) and a cash flow curve by payment period (S-curve plot), both based on actual dates.

### 3.5.5 Network Diagram

The time scaled network diagram shall be required on the initial schedule submission and on quarterly update submissions. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The CO will use, but is not limited to, the following conditions to review compliance with this paragraph:

#### 3.5.5.1 Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.

#### 3.5.5.2 Project Milestone Dates

Dates shall be shown on the diagram for start of project, any contract-required interim completion dates, and contract completion dates.

#### 3.5.5.3 Critical Path

The critical path shall be clearly shown.

#### 3.5.5.4 Banding

Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

#### 3.5.5.5 S-Curves (Not Used)

### 3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly on-site meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule to reflect the current status of the project. The CO will approve activity progress, proposed revisions, and adjustments as appropriate.

#### 3.6.1 Meeting Attendance

The Contractor's Project Manager and Scheduler shall attend the regular progress meeting.

### 3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after the monthly progress meeting.

### 3.6.3 Progress Meeting Contents

Update information, including Actual Start Dates, Actual Finish Dates, Remaining Durations, and Cost to Date shall be subject to the approval of the CO. The Contractor shall address the following minimum set of items on an activity-by-activity basis, during each progress meeting.

#### 3.6.3.1 Start and Finish Dates

The Actual Start and Actual Finish dates for each activity currently in-progress or completed activities.

#### 3.6.3.2 Time Completion

The estimated Remaining Duration for each activity in-progress. Time-based progress calculations must be based on Remaining Duration for each activity.

#### 3.6.3.3 Cost Completion (Not Used)

#### 3.6.3.4 Logic Changes

All logic changes pertaining to NTP on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.

#### 3.6.3.5 Other Changes

Other changes required due to delays in completion of any activity or group of activities are those delays beyond the Contractor's control such as strikes and unusual weather. Also included are delays encountered due to submittals, Government Activities, deliveries or work stoppage which makes re-planning the work necessary, and when the schedule does not represent the actual prosecution and progress of the work.

### 3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, the Contractor shall furnish such justification, including project schedule data and supporting evidence as the CO may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract. Submission of proof of delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is obligatory to any approvals.

#### 3.7.1 Justification of Delay

The project schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The CO's determination as to the number of allowable calendar days of contract extension, shall be based upon the project schedule updates in effect for the time period in question and other factual information. Actual delays that are found to be caused by the Contractor's own actions, which result in the extension of the schedule, shall not be a cause for a time extension to the contract completion date.

#### 3.7.2 Submission Requirements

The Contractor shall submit a justification for each request for a change in the contract completion date of under 2 weeks based upon the most recent schedule update at the time of the NTP or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number
- b. A brief explanation of the causes of the change
- c. An analysis of the overall impact of the changes proposed
- d. A sub-network of the affected area

Activities impacted in each justification for change shall be identified by a unique activity code contained in the required data file.

#### 3.7.3 Additional Submission Requirements

For any request for time extension for over 2 weeks, the CO may request an interim update with revised activities for a specific change request. The Contractor shall provide this disk within 4 calendar days of the CO's request.

### 3.8 DIRECTED CHANGES

If the NTP is issued for changes prior to settlement of price and/or time, the Contractor shall submit proposed schedule revisions to the CO within 2 weeks of the NTP being issued. The proposed revisions to the schedule will be approved by the CO prior to inclusion of those changes within the

project schedule. If the Contractor fails to submit the proposed revisions, the CO may furnish the Contractor suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until the Contractor submits revisions, and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the CO, then the Contractor shall advise the CO within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor will continue to update their schedule with the CO's revisions until a mutual agreement in the revisions may be made. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the CO's proposed revisions, the Contractor will be deemed to have concurred with the CO's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

### 3.9 OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the CO or the Contractor.

### 3.10 NETWORK ANALYSIS SYSTEM (NAS) DATA

The Contractor shall provide the Government with the means to electronically transfer all required NAS data into the Resident Management System (RMS) program using the Standard Data Exchange Format (SDEF). The Contractor may use network analysis software different from that used by the Contracting Officer in the Resident Office, however, the Contractor shall also furnish the following:

- NAS data that complies with the Standard Data Exchange Format (SDEF). This is a standard ASCII format for exchanging scheduling data and is compatible with our resident management system. Many software developers provide the capability to convert and export schedule data to the SDEF at no additional cost. The SDEF specifications are in a separate publication, available from the Internet -- <http://www.usace.army.mil/search.html> - Publications.

**END OF SECTION**

## **SECTION 01330**

### **SUBMITTAL PROCEDURES**

#### **PART 1 GENERAL**

##### **1.1 CONTROL AND SCHEDULING OF SUBMITTALS**

###### **1.1.1 Submittal Coordination Meeting**

After the preconstruction conference and before any submittals are sent to the Contracting Officer (CO), the Contractor shall meet with the CO and provide and further develop an approved preliminary submittal register, ENG Form 4288. During the meeting all required items will be identified and grouped into three categories:

- a. Government Approval (GA): Government approval is required for extensions of design, critical materials, variations/deviations, an “or equal” decision, equipment whose compatibility with the entire system must be checked, architectural items such as Color Charts/Patterns/Textures, and other items as designated by the CO. Within the terms of the Contract Clause entitled “Specifications and Drawings for Construction,” these submittals will be acted on as “shop drawings.”
- b. For Information Only (FIO): Submittals not requiring Government approval will be for information only. These are items such as Installation Procedures, Certificates of compliance, Samples, Qualifications, etc. Within the terms of the Contract Clause entitled “Specifications and Drawings for Construction,” these submittals will not be acted on as “shop drawings.”
- c. Those items that can be visually inspected by the Contractor Quality Control (CQC) System Manager on site or are provided to the CO other than with an ENG Form 4025: The items that fall into this category shall remain on the register but shall not be submitted to the CO. For these items, the “Classification” column on the submittal register shall remain blank.

###### **1.1.2 Final Submittal Register**

The final submittal register shall be coordinated with the progress schedule and submitted with the Remedial Action Management Plan (RAMP, Section 01400) within 45 calendar days of Notice to Proceed (NTP). In preparing the final document, adequate time (minimum of 30 calendar days) shall be allowed for review and approval, and possible resubmittal of each item on the register.

### 1.1.3 Submittal Register Updates

The CQC System Manager shall review the listing at least every 30 calendar days and take appropriate action to maintain an effective system. Copies of updated or corrected listings shall be submitted to the CO at least every 30 calendar days in the quantity specified. Submittal items may only be removed with written consent of the CO.

## 1.2 SUBMITTAL TYPES

Throughout these specifications submittals may be identified with the prefix “SD” (submittal data) followed by a number (category, i.e., data, drawings, reports, etc.). This is for bookkeeping and record sorting in the system:

### SD-01 Data

Submittals which provide calculations, descriptions, or documentation regarding the work.

### SD-04 Drawings

Submittals which graphically show relationship of various components of the work, schematic diagrams of systems, details of fabrication, layouts of particular elements, connections, and other relational aspects of the work.

### SD-06 Instructions

Preprinted material describing installation of a product, system or material, including special notices and material safety data sheets, if any, concerning impedances, hazards, and safety precautions.

### SD-07 Schedules

Tabular lists showing location, features, or other pertinent information regarding products, materials, equipment, or components to be used in the work.

### SD-08 Statements

A document, required of the Contractor, or through the Contractor from a subcontractor, supplier, installer, or manufacturer to confirm the quality or orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel, qualifications, or other quality verifications.

### SD-09 Reports



Reports of inspections or tests, including analyses and interpretation of test results. Each report shall be properly identified. Test methods used shall be identified and test results shall be recorded.

#### SD-13 Certificates

Statement signed by an official authorized to certify on behalf of the manufacturer that a product, system or material meets specified requirements. The statement must be dated after the award of this contract and state the Contractor's name and address, project and location, and list specific requirements which are being certified.

#### SD-14 Samples

Fabricated and/or unfabricated physical examples of materials, products, and/or units of work as complete units or as portions of units.

#### SD-18 Records

Documentation to record compliance with technical or administrative requirements.

#### SD-19 Operation and Maintenance (O&M) Manuals

Data which forms a part of an O&M manual.

Submittals required by the Contract Clauses and other nontechnical parts of the contract are not necessarily included in this section. These type of submittals can be added to the register before or during the submittal coordination meeting.

### 1.3 APPROVED SUBMITTALS

The approval of submittals by the CO shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist. The Contractor, under the CQC requirements of this contract, is responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. After submittals have been approved by the CO, no resubmittal for the purpose of substituting materials or equipment will be given consideration.

### 1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the CO and promptly furnish a corrected submittal in the format and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, written notice, as required under the Contract Clause entitled "Changes," shall be given to the CO.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.1 GENERAL**

Prior to submittal, all items shall be checked and approved by the CQC System Manager and each item of the submittal shall be stamped, signed, and dated. Each respective transmittal form (ENG Form 4025) shall be signed and dated by the CQC System Manager certifying that the accompanying submittal complies with the contract requirements. This procedure applies to all submittals. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including, but not limited to, catalog cuts, diagrams; operating charts or curves; test reports; test cylinders; samples; O&M manuals including parts lists; certifications; warranties and other such required items. Units of weights and measures used on all submittals shall be the same as on the Drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. GA submittals shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. The CO may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective sections. The Contractor shall maintain a complete and up-to-date file of all submittals/items on site for use by both the Contractor and the CO.

### **3.2 SUBMITTAL REGISTER (ENG FORM 4288)**

The submittal register (ENG Form 4288) for Divisions 1 through 16 shall be developed by the Contractor prior to the submittal coordination meeting and shall list each item of equipment and material for which submittals are required in the Technical Specifications. (See paragraph SUBMITTALS at the beginning of each specification section. A blank ENG Form 4288 and a preliminary submittal register for the Contractor's information are attached at the end of this specification section.) The Contractor shall approve all items listed on the preliminary submittal register and amend it as necessary to produce a complete submittal listing. A preliminary submittal register shall be created by the Contractor by annotating this ENG Form 4288 for use at the submittal coordination meeting. When the final submittal register is submitted for approval, the Contractor shall complete the column entitled "Item No." and all data under "Contractor Schedule Dates" and return five completed copies to the CO for approval. The Contractor shall review the list to ensure its completeness and may expand general category listings to show individual entries for each item. The numbers in column "Item No." are to be assigned sequentially starting with "1" for each specification section. DO NOT preassign transmittal numbers when preparing the submittal register. When a conflict exists between the submittal register and a submittal requirement in the technical sections, other than those submittals referenced in paragraph 3.9 FIELD TEST REPORTS, the approved submittal register shall govern. The preliminary, and then the final approved submittal register, shall become the scheduling documents and shall be updated monthly

and used to control submittals throughout the life of the contract. Names and titles of individuals authorized by the Contractor to approve shop drawings shall be submitted to the CO with the final ENG Form 4288. Supplier or subcontractor certifications are not acceptable as meeting this requirement.

### 3.3 SCHEDULING

Submittals covering component items forming a system, or items that are interrelated, shall be coordinated and submitted concurrently. Certifications shall be submitted together with other pertinent information and/or drawings. Additional processing time beyond 30 calendar days, or number of copies, may be shown by the CO on the submittal register attached in the “Remarks” column, or may be added by the CO during the coordination meeting. No delay damages or time extensions will be allowed for time lost due to the Contractor not properly scheduling and providing submittals.

### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

Transmittal ENG Form 4025 (sample at end of this section) shall be used for submitting both GA and FIO submittals in accordance with the instructions on the reverse side of the form. Transmittal numbers shall be assigned sequentially. Electronically generated copies of ENG Form 4025 transmittals shall be printed on carbonless paper and be a reasonable facsimile of the original. If electronic forms are not used, originals of the ENG Form 4025 shall be used (do not photo copy) and will be furnished by the CO. These forms shall be filled in completely prior to submittal. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item. Each submittal item shall be listed separately on the form, naming subcontractor, supplier, or manufacturer, applicable specification paragraph number(s), drawing/sheet number, pay item number, and any other information needed to identify the item, define its use, and locate it in the work. One or more ENG Form 4025 transmittals may be used per specification section; however, DO NOT include more than one specification section per transmittal.

### 3.5 CROSS-REFERENCE (ENG FORM 4288/ENG FORM 4025)

To provide a cross-reference between the approved submittal register and transmittal forms, the Contractor shall record the “transmittal numbers” assigned when submitting items in column “Transmittal No.” of the ENG Form 4288. The item numbers in column “Item No.” of submittal register shall correspond to the item numbers on ENG Form 4025.

### 3.6 SUBMITTAL PROCEDURE

#### 3.6.1 General

Shop drawings with ENG Form 4025 transmittals shall be submitted in the number of copies specified in subparagraphs “Government Approved Submittals” and “Information Only Submittals,” or as indicated on the submittal register in the “Remarks” column. Submit a complete collated “reviewers copy” with one ENG Form 4025 and attachments (not originals). The remaining copies (4 for GA, 2 for FIO) of ENG Form 4025 and attachments shall not be collated. This would not apply to a series of drawings.

### 3.6.2 Approval of Submittals by the Contractor

Before submittal to the CO, the Contractor shall review and correct shop drawings prepared by subcontractors, suppliers, and itself, for completeness and compliance with the Drawings and specifications. The Contractor shall not use red markings for correcting material to be submitted. Red markings are reserved for CO’s use. Approval by the Contractor shall be indicated on each shop drawing by an approval stamp containing information as shown in this section. Submittals not conforming to the requirements of this section will be returned to the Contractor for correction and resubmittal.

### 3.6.3 Variations

For submittals which include proposed variations requested by the Contractor, column “h” of ENG Form 4025 shall be checked and the submittal shall be classified as GA, and submitted accordingly. The Contractor shall set forth in writing the justification for any variations and annotate such variations on the transmittal form in the REMARKS block. Variations are not approved unless there is an advantage to the Government. The CO reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

### 3.6.4 Drawings

Each drawing shall be not larger than A1 size, 40 inches wide by 28 inches high (841 millimeters [mm] wide by 594 mm), with a title block in the lower right hand corner and a 3 inches by 4 inches (75 mm by 100 mm) clear area adjacent. The title block shall contain the subcontractor’s or fabricator’s name, contract number, description of item(s), bid item number, and a revision block. Provide a blank margin of 3/4 inch (20 mm) at bottom, 2 inches (50 mm) at left, and 1/2 inch (10 mm) at top and right. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. The Contractor shall ensure that information is complete and that the sequence of drawing submittals is such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings. All revisions after initial submittal shall be shown by number, date, and subject in revision block.

#### 3.6.4.1 Submittals Containing Drawings Larger Than Size A3 11 inches high by 17 inches (297 mm by 420 mm)

For GA submittals containing drawings larger than A3 size, one reproducible and one blue line copy shall be submitted with five copies of the ENG Form 4025. The marked-up reproducible (and/or any review comments contained on the page-size comment sheet(s) at the CO's option) will be returned to the Contractor upon review. The Contractor shall provide three copies of blue line drawings (generated from the reviewed reproducible) to the CO within 10 calendar days of Contractor's receipt of the reviewed reproducible. The Contractor shall not incorporate approved work into the project until the CO has received the three blue line copies. The Contractor shall use the marked-up reproducible to make any additional copies as needed. For FIO submittals, one reproducible and two blue line copies shall be submitted with the appropriate number of copies of ENG Form 4025.

#### 3.6.5 Printed Material

All requirements for shop drawings shall apply to catalog cuts, illustrations, printed specifications, or other data submitted, except that the 3 inch by 4 inch (75 mm by 100 mm) clear area adjacent to the title block is not mandatory. Inapplicable portions shall be marked out and applicable items such as model numbers, sizes, and accessories shall be indicated by arrow or highlighted.

#### 3.7 SAMPLES REQUIRING LABORATORY ANALYSIS

See Section 01451 CONTRACTOR QUALITY CONTROL for procedures and address for samples requiring CO testing.

#### 3.8 SAMPLES REQUIRING VISUAL INSPECTION

Samples requiring only physical inspection for appearance and suitability shall be coordinated with the CO.

#### 3.9 FIELD TEST REPORTS

Routine tests such as soil density, concrete deliveries, repetitive pressure testing shall be delivered to the QAR with the daily Quality Control reports. See Section 01451 CONTRACTOR QUALITY CONTROL.

#### 3.10 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### 3.11 GA SUBMITTALS

The Contractor shall submit 5 copies of GA submittals with 5 corresponding copies of ENG Form 4025 unless extra copies are specified in a specific section. Upon completion of GA submittal review, copies as specified below will be marked with an action code, dated, and returned to the Contractor. See “Drawings” above for special instructions if drawings larger than size A3, 11 inches by 17 inches (297 mm by 420 mm), are used.

#### 3.11.1 Processing of GA Submittals

Submittals will be reviewed and processed as follows:

- a. Approved as Submitted (Action Code “A”): Shop drawings which can be approved without correction will be stamped “Approved” and two copies will be returned to the Contractor. No resubmittal required.
- b. Approved Except as Noted (Action Code “B”): Shop drawings which have only minor discrepancies will be annotated in red to indicate necessary corrections. Marked material will be stamped “Approved Except as Noted” and two copies returned to the Contractor for correction. No resubmittal required.
- c. Approved Except as Noted (Action Code “C”): Shop drawings which are incomplete or require more than minor corrections will be annotated in red to indicate necessary corrections. Marked material will be stamped “Approved Except as Noted - Resubmission Required” and two copies returned to the Contractor for correction. Resubmittal of only those items needing correction required.
- d. Disapproved (Action Code “E”): Shop drawings which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections, will be returned to the Contractor stamped “Disapproved.” An explanation will be furnished on the submitted material or on ENG Form 4025 indicating reason for disapproval. Complete resubmittal required.
- e. Resubmittal will not be required for shop drawings stamped “A” or “B” unless subsequent changes are made by Contractor or a contract modification. For shop drawings stamped “C” or “E,” the Contractor shall make corrections required, note any changes by dating the revisions to correspond with the change request date, and promptly resubmit the corrected material. Resubmittals shall be associated with the “parent” by use of sequential alpha characters (for example, resubmittal of transmittal 8 will be 8A, 8B, etc). Government costs incurred after the first resubmittal may be charged to the Contractor.

### 3.12 FIO SUBMITTALS

The Contractor shall submit three copies of data and four copies of ENG Form 4025. FIO submittals will not be returned. Government approval is not required on FIO submittals. These submittals will be used for information purposes. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the Contract. This does not relieve the Contractor from the obligation to furnish material conforming to the Drawings and specifications and will not prevent the CO from requiring removal and replacement if nonconforming material is incorporated in the work. This does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

### 3.12.1 Processing of FIO Submittals

FIO submittals shall be submitted prior to delivery of the material or equipment to the job site. ENG Form 4025 shall be marked with the words “contractor approved - information copy only” in the REMARKS block of the form. Submittals will be monitored and spot checks made. When such checks indicate noncompliance, the Contractor will be notified by the same method used for GA submittals. Resubmittal of nonconforming FIO submittals shall be reclassified GA and shall be in five copies.

### 3.13 CONTRACTOR APPROVAL STAMP

The stamp used by the Contractor on the submittal data to certify that the submittal meets Contract requirements shall be similar to the following:

CONTRACTOR: _____	<b>CONTRACTORS REVIEW STAMP</b> MAXIMUM SIZE: 3 INCHES BY 3 INCHES (7.6 CENTIMETERS [CM] BY 7.6 CM)
CONTRACT NUMBER: _____	
TRANSMITTAL NUMBER: _____	
ITEM NUMBER: _____	
SPECIFICATION SECTION: _____	
PARAGRAPH NUMBER: _____	
_____ APPROVED AS SUBMITTED	
_____ APPROVED WITH	
_____ CORRECTIONS AS NOTED	
SIGNATURE: _____	
TITLE: _____	
DATE: _____	

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <small>(Read instructions on the reverse side prior to initiating this form)</small>			DATE	TRANSMITTAL NO.	
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS <small>(This section will be initiated by the contractor)</small>					
TO:		FROM:		CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____	
SPECIFICATION SEC. NO. <small>(Cover only one section with each transmittal)</small>		PROJECT TITLE AND LOCATION		CHECK ONE: THIS TRANSMITTAL IS FOR <input type="checkbox"/> FID <input type="checkbox"/> GOV'T. APPROVAL	
ITEM NO.	DESCRIPTION OF ITEM SUBMITTED <small>(Type size, model number/etc.)</small>	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <small>(Size instruction no. 8)</small>	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT SPEC. PARA. NO. <small>a.</small> DRAWING SHEET NO. <small>c.</small>	FOR CONTRACTOR USE CODE <small>b.</small> VARIATION <small>(Size instruction No. 8)</small> FOR CE USE CODE <small>d.</small>
a.	b.	c.	d.	e.	f.
REMARKS I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.					
NAME AND SIGNATURE OF CONTRACTOR					
SECTION II - APPROVAL ACTION					
ENCLOSURES RETURNED <small>(List by item No.)</small>			NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY		
			DATE		
ENG FORM 4025-R, MAR 95		(SR 415-1-10)	EDITION OF SEP 93 IS OBSOLETE.		SHEET ____ OF ____
					PREPARED BY: C E H P C B



INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- |   |    |                                                                                          |    |    |                                                                               |
|---|----|------------------------------------------------------------------------------------------|----|----|-------------------------------------------------------------------------------|
| A | -- | Approved as submitted.                                                                   | E  | -- | Disapproved (See attached).                                                   |
| B | -- | Approved, except as noted on drawings.                                                   | F  | -- | Receipt acknowledged.                                                         |
| C | -- | Approved, except as noted on drawings.<br>Refer to attached sheet resubmission required. | FX | -- | Receipt acknowledged, does not comply<br>as noted with contract requirements. |
| D | -- | Will be returned by separate correspondence.                                             | G  | -- | Other (Specify)                                                               |

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

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SUBMITTAL REGISTER																					CONTRACT NUMBER				
(ER 415-1-10)																									
TITLE AND LOCATION															CONTRACTOR					SPECIFICATION SECTION					
PHASE I REMEDIAL ACTION, TONGUE POINT LANDFILL SITE																									
TRANS MITTAL NO	ITEM NO	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL										CLASS- IFICATION		CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS	
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	OPERATION AND MAINTENANCE	INFORMATION ONLY	GOVERNMENT APPROVED	REVIEWER	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOVERNMENT	CODE		DATE
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Section 01240																							
		Para. 1.3	Cost and Performance Report						X						X										
		Para. 1.3	Report Format									X			X										
		Section 01270																							
		Para. 1.2	Quantity Surveys	X											X										
		Section 01320																							
		Para. 1.1	Preliminary Project Schedule				X								X										
		Para. 1.1	Initial Project Schedule				X								X										
		Para. 1.1	Periodic Schedule Updates				X							X											
		Para. 1.1	Scheduler Qualifications					X							X										
		Section 01330																							
		Para. 1.1.2	Submittal Register									X			X										
		Section 01351																							
		Para. 1.3	Contractor's Site Safety and Health Plan						X						X										
		Para. 1.3	Monitoring/Sampling Results						X					X											
		Para. 1.3	Site Control Log						X					X											
		Para. 1.3	Construction Safety Conference Minutes						X					X											
		Para. 1.3	Safety and Health Phase-Out Report						X						X										
		Section 01400																							
		Para. 1.2	Remedial Action Mgt. Plan	X											X										
		Section 01410																							
		Para. 1.1.1	Environmental Protection Plan	X											X										
		Para. 1.1.1	Preconstruction Survey	X											X										
		Para. 1.1.1	Filter Fabric Fence							X					X										

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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Para. 1.1.1	Rolled Erosion Control Product								X				X										
		Para. 1.1.1	Straw Mulch								X				X										
		Section 01451																							
		Para. 1.2	Contractor Quality Control Plan	X											X										
		Section 01500																							
		Para. 1.1	Site Plan	X											X										
		Para. 1.1	Identification of Employees									X		X											
		Section 01560																							
		Para. 1.2	Care and Diversion of Water Work Plan	X											X										
		Para. 1.2	Designs		X										X										
		Section 01720																							
		Para. 1.3	Survey Crew Qualifications					X							X										
		Para. 1.3	Field Notes, Computations and Survey Quantities									X			X										
		Section 01780																							
		Para. 1.1	Record Field Data	X											X										
		Para. 1.1	Final Record Drawings		X										X										
		Para. 1.1	Electronic Record Drawings		X										X										
		Section 01785																							
		Para. 1.1	Manufacturer, Supplier, and Subcontractor Warranties					X							X										
		Section 01788																							
		Para. 1.2	Project Closeout Report						X						X										
		Para. 1.2	Draft O&M Manual										X		X										
		Para. 1.2	Final O&M Manual										X		X										

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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Section 02120																							
		Para. 1.2	Waste Management Plan	X											X										
		Para. 1.2	Recordkeeping						X						X										
		Para. 1.2	Spill Response						X					X											
		Para. 1.2	Spill Prevention, Control, and Countermeasures Plan						X					X											
		Para. 1.2	Exception Reports						X					X											
		Para. 1.2	Qualifications							X				X											
		Para. 1.2	Off-Site Policy Compliance Certificate							X					X										
		Para. 1.2	Certificates of Disposal							X				X											
		Para. 1.2	Packagings Certification							X					X										
		Para. 1.2	Notices of Non-Compliance and Notices of Violation									X		X											
		Section 02145																							
		Para. 1.5	Certificates and Testing Reports							X					X										
		Section 02230																							
		Para. 1.2	Materials Other Than Salable Timber									X		X											
		Section 02241																							
		Para. 1.3	Classification Determinations						X						X										
		Para. 1.3	Procurement of Borrow Material Certificates							X					X										
		Section 02300																							
		Para. 1.3	Testing						X						X										
		Para. 1.3	Procurement of Borrow Materials							X					X										
		Para. 1.3	Testing						X						X										
		Para. 1.3	Earthwork									X			X										

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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Section 02316																							
		Para. 1.3	Field Density Tests						X						X										
		Para. 1.3	Testing of Backfill Materials						X						X										
		Section 02317																							
		Para. 1.4	Trench Installation Plan	X											X										
		Para. 1.4	Field Density Tests						X						X										
		Para. 1.4	Testing of Backfill Materials						X						X										
		Section 02373																							
		Para. 1.2	Thread	X											X										
		Para. 1.2	Manufacturing Quality Control Sampling and Testing			X									X										
		Para. 1.2	Seams						X						X										
		Para. 1.2	Geotextile								X				X										
		Para. 1.2	QA Samples and Tests									X			X										
		Section 02379																							
		Para. 1.4	Raw Materials	X											X										
		Para. 1.4	Geomembrane Installation	X											X										
		Para. 1.4	Sheet Material	X											X										
		Para. 1.4	Record Drawings		X										X										
		Para. 1.4	Tests, Inspections, and Verifications			X									X										
		Para. 1.4	Field Seaming			X									X										
		Para. 1.4	Qualifications					X							X										
		Para. 1.4	Surface Preparation						X						X										
		Para. 1.4	Thickness Measurement						X						X										
		Para. 1.4	Non-Destructive Field Seam Continuity Testing						X						X										

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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Para. 1.4	Destructive Field Seam Testing						X						X										
		Para. 1.4	Destructive Seam Test Repairs						X						X										
		Para. 1.4	Samples								X				X										
		Para. 1.4	Tests							X					X										
		Section 02510																							
		Para. 1.4	Installation	X										X											
		Para. 1.4	Wastewater Disposal Method						X						X										
		Para. 1.4	Bacteriological Disinfection						X						X										
		Para. 1.4	Backflow Prevention Assembly Tests						X						X										
		Para. 1.4	Manufacturer's Representative							X				X											
		Para. 1.4	Plastic Piping System							X					X										
		Para. 1.4	Installation							X					X										
		Para. 1.4	Satisfactory Installation							X					X										
		Section 02679																							
		Para 1.3	Drilling and Bailing Equipment and Method	X										X											
		Para 1.3	Well casing/grouting materials specification/manufacturer's literature	X										X											
		Para 1.3	Well extension construction diagrams	X										X											
		Para 1.3	Well Driller Qualifications									X		X											
		Para 1.3	Well Abandonment Notices									X		X											
		Para 1.3	Contractor HAZWOPER Cert.									X		X											
		Section 02821																							
		Para. 1.2	Chain Link Fence							X					X										

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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Section 03307																							
		Para. 1.2	Air-Entraining Admixture	X										X											
		Para. 1.2	Accelerating Admixture	X										X											
		Para. 1.2	Water-Reducing or Retarding Admixture	X										X											
		Para. 1.2	Curing Materials	X										X											
		Para. 1.2	Reinforcing Steel	X										X											
		Para. 1.2	Batching and Mixing Equipment	X										X											
		Para. 1.2	Conveying and Placing Concrete	X										X											
		Para. 1.2	Formwork	X										X											
		Para. 1.2	Aggregates						X						X										
		Para. 1.2	Concrete Mixture Proportions						X						X										
		Para. 1.2	Cementitious Materials							X					X										
		Para. 1.2	Aggregates							X					X										
		Section 13122																							
		Para. 1.3	Drawings		X										X										
		Para. 1.3	Manufacturer's Instructions			X								X											
		Para. 1.3	Qualifications					X						X											
		Section 15100																							
		Para. 1.3	Shop Drawings		X										X										
		Para. 1.3	Spare Parts List									X		X											
		Para. 1.3	O&M Manual										X	X											
		Section 15210																							
		Para. 1.4	Compressor		X									X											
		Para. 1.4	Compressor Controller		X									X											
		Para. 1.4	Vibration Absorbing Features	X										X											



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a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
		Para. 1.4	Materials and Equipment								X				X										
		Section 16375																							
		Para. 1.3	Shop Drawings		X									X											
		Para. 1.3	Fault Current Analysis	X											X										
		Para. 1.3	Protective Device	X											X										
		Para. 1.3	Material and Equipment	X										X											
		Para. 1.3	Factory Tests						X					X											
		Para. 1.3	Field Tests						X					X											
		Para. 1.3	Operating Tests						X					X											
		Para. 1.3	Cable Installation						X					X											
		Para. 1.3	Material and Equipment							X				X											
		Para. 1.3	O&M Data										X	X											

END OF SECTION

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## SECTION 01351

### SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW)

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

#### AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH-02 (2000) Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices

#### AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z358.1 (1990) Emergency Eyewash and Shower Equipment

#### AMERICAN PETROLEUM INSTITUTE (API)

API Publ 2219 (1986) Safe Operation of Vacuum Trucks in Petroleum Service  
API Std 2015 (1994) Safe Entry and Cleaning of Petroleum Storage Tanks

#### CODE OF FEDERAL REGULATIONS (CFR)

10 CFR 20 Standards for Protection Against Radiation  
29 CFR 1904 Recording and Reporting Occupational Injuries and Illnesses  
29 CFR 1910 Occupational Safety and Health Standards  
29 CFR 1926 Safety and Health Regulations for Construction  
49 CFR 171 General Information, Regulations, and Definitions  
49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

#### U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

EM 385-1-92 (1994) U.S. Army Corps of Engineers Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH Pub (1985) Occupational Safety and Health Guidance Manual for  
No. 85-115 Hazardous Waste Site Activities

OREGON ADMINISTRATIVE RULES (OAR)

OAR Division 2 General Occupational Safety and Health Rules  
Chapter 437 Division 3 Construction

## 1.2 DESCRIPTION OF WORK

This section provides additional requirements for implementing the accident prevention provisions of EM 385-1-1, and provides specifications for the Contractor's Site Safety and Health Plan (SSHP) which shall satisfy the requirements for submission of a separate Accident Prevention Plan (APP) as required by EM 385-1-1. The Contractor must prepare and submit a SSHP to provide protective procedures for its employees and subcontractors performing work in contaminated areas of the Tongue Point Landfill site (Site). Site contaminants that could harm employees' health are listed in Section 01115 SITE DESCRIPTION, Table 01115-1 Maximum Concentrations for Chemicals of Concern in Site Media. The "worst-case" site data, as presented in Table 01115-1, indicate potential high exposure to a variety of heavy metals, various petroleum constituents (in the diesel, gasoline, and motor oil range), as well as potentially minor amounts of pesticides, dioxins/furans, polychlorinated biphenyls (PCBs) and other semivolatile organics. Specific inorganics have separate standards that must be reviewed; including arsenic, cadmium, and lead (29 CFR 1910.1018, 1910.1027, and 1910.1025, respectively). In addition, mercury and various polycyclic aromatic hydrocarbons (PAHs, including benzo(a)pyrene and chrysene, for example) shall be addressed in an initial monitoring strategy.

As all compounds mentioned can pose a significant health risk at elevated levels, a stringent SSHP is required. In general, Oregon Occupational Safety and Health Administration (OR-OSHA) has adopted by reference federal OSHA standards. However, in some cases, OR-OSHA may have state-approved standards that differ from the federal standard. The Contractor should review all standards that apply, and use the most stringent enforceable standard.

### 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

#### SD-09 Reports

Contractor’s SSHP; GA.

The content of the required Contractor’s SSHP is described in paragraph 1.7 SITE SAFETY AND HEALTH PLAN (SSHP) of this section. The SSHP shall include drawings showing work zones and decontamination facilities. Drawings shall include initial work zone boundaries: Exclusion Zone (EZ), including restricted and regulated areas; Contamination Reduction Zone (CRZ); and Support Zone (SZ). Drawings shall also show the layout of the personnel and equipment decontamination areas. These drawings will be provided in the SSHP produced by the chosen Contractor. More information concerning the boundaries of these areas can be found in paragraphs 1.19 SITE CONTROL MEASURES and 1.20 PERSONAL HYGIENE AND DECONTAMINATION, respectively.

Monitoring/Sampling Results; FIO.

Personnel exposure monitoring/sampling results. Monitoring/sampling results shall be submitted daily with daily construction quality control reports (DCQCRs). Formal monitoring/sample results shall be submitted monthly.

Site Control Log; FIO.

Record of each individual’s entry and exit into the site, as specified. The site control log will be submitted with the DCQCRs.

Construction Safety Conference Minutes; FIO.

Minutes of pre-construction and construction safety conferences attended by Contractor and government representatives.

Safety and Health Phase-Out Report; GA.

A summary of health and safety issues encountered and resolved during the course of the project. Any areas of potential improvement and “lessons learned” should be noted in this report, as well as any pertinent accident/incident reports. The Safety and Health Phase-Out report shall be submitted as part of the draft and final Project Closeout Report in accordance with Section 01788 MAINTENANCE AND PROJECT CLOSEOUT.

## 1.4 REGULATORY REQUIREMENTS

Work performed under this contract shall comply with EM 385-1-1, as well as applicable federal, state, and local safety and occupational health laws and regulations. This includes, but is not limited to, OSHA standards, 29 CFR 1910, especially Section .120, “Hazardous Waste Site Operations and Emergency Response” and the equivalent in 29 CFR 1926, especially Section .65, “Hazardous Waste Site Operations and Emergency Response.” Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

## 1.5 PRECONSTRUCTION SAFETY CONFERENCE/“TAILGATE” SAFETY MEETINGS

Contractor shall conduct a preconstruction safety conference before on-site work begins. In order to appropriately schedule personnel, the CO will be given notice 5 calendar days in advance of this meeting. All Contractor’s safety-related issues shall be presented at the conference. The Contractor will take minutes of this meeting. As work proceeds, the Contractor shall hold “tailgate” safety meetings as frequently as necessary to address issues and discuss work procedures. These meetings shall be documented (Attachment 01351-A SAMPLE FORM FOR ON-SITE SAFETY MEETING/TAILGATE MEETING DOCUMENTATION is provided at the end of this section). The Contractor shall notify the CO a minimum of 5 calendar days in advance of a meeting.

## 1.6 SAFETY AND HEALTH PROGRAM

OSHA Standards 29 CFR 1910, Section .120 (b) and 29 CFR 1926, Section .65 (b) require employers to develop and implement a written Safety and Health Program for employees involved in hazardous waste operations. The site-specific program requirements of the OSHA Standards shall be integrated into one site-specific document, the SSHP. The SSHP shall interface with the employer’s overall Safety and Health Program. Any portions of the overall Safety and Health Program that are referenced in the SSHP shall be included as appendices to the SSHP.

## 1.7 SITE SAFETY AND HEALTH PLAN

### 1.7.1 Preparation and Implementation

An SSHP shall be prepared covering on-site work to be performed by the Contractor and all its subcontractors. The Contractor’s Safety and Health Manager shall be responsible for the development, implementation, and oversight of the SSHP. The SSHP shall establish, in detail, the protocols necessary for the anticipation, recognition, evaluation, and control of hazards associated with each task performed. The SSHP shall address site-specific safety and health requirements and procedures based upon site-specific conditions. The level of detail provided in the SSHP shall be tailored to the type of work, complexity of operations to be performed, and hazards anticipated. Details about some activities may not be available when the initial SSHP is prepared and submitted.

Therefore, the SSHP shall address, in as much detail as possible, anticipated tasks, their related hazards, and anticipated control measures.

#### 1.7.2 Acceptance and Modifications

Prior to submittal, the SSHP shall be signed and dated by the Safety and Health Manager and the Site Superintendent. The SSHP shall be submitted as part of the Remedial Action Management Plan (RAMP) (Section 01400 REMEDIAL ACTION MANAGEMENT PLAN) within 45 calendar days after Notice to Proceed. Deficiencies in the SSHP will be discussed at a review conference after the initial draft has been reviewed. The SSHP shall be revised to correct the deficiencies and resubmitted for acceptance. On-site work shall not begin until the plan has been accepted. A copy of the written SSHP shall be maintained on site.

As work proceeds, the SSHP shall be adapted to new situations and new conditions. Changes and modifications to the accepted SSHP shall be made with the knowledge and concurrence of the Safety and Health Manager, the Site Superintendent, and the CO. Should any unforeseen hazards become evident during the performance of the work, the Site Safety and Health Officer (SSHO) shall bring any such hazards to the attention of the Safety and Health Manager, the Site Superintendent, and the CO, both verbally and in writing, for resolution as soon as possible. In the interim, necessary actions shall be taken to re-establish and maintain safe working conditions to safeguard on-site personnel, visitors, the public, and the environment. Disregard for the provisions of this specification or the accepted SSHP shall cause the government to order a stopping of work until the matter has been rectified.

#### 1.7.3 Availability

The SSHP shall be made available to all site employees, subcontractors, and site visitors in accordance with 29 CFR 1910, Section .120 (b)(1)(v) and 29 CFR 1926, Section .65 (b)(1)(v). All individuals receiving a copy of the SSHP, or directed to read the SSHP, will sign the Certificate of Worker/Visitor Acknowledgment, described in paragraph Certificate of Worker/Visitor Acknowledgment. Attachment 01351-B SAMPLE FORM FOR CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT of this certificate is provided at the end of this section.

#### 1.7.4 Elements

Topics required by 29 CFR 1910, Section .120 (b)(4) 29 CFR 1926, Section .65 (b)(4), the Accident Prevention Plan as described in Appendix A of EM 385-1-1, appropriate elements from Appendix C of ER 385-1-92 and the paragraph below this section shall be addressed in the SSHP. Where the use of a specific topic is not applicable to the project, the SSHP shall include a statement to justify its omission or reduced level of detail and establish that adequate consideration was given the topic.

## 1.8 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

### 1.8.1 Project/Site Conditions

The following information is a record of site contaminants and a description of the site. This information is provided to assist in preparing the SSHP. Additional sources of information are available as listed below.

#### 1.8.1.1 Site Information

A summary of the Site and site contamination is described in Section 01115 SITE DESCRIPTION. A Limited Remedial Investigation (LRI) was conducted between 1995 and 1998 at the Site. Some of the results from the investigation are summarized below. Light nonaqueous phase liquid (LNAPL) was observed in shallow groundwater wells and Geoprobe wells throughout the landfill. Locations were downgradient (southeast) of an identified sludge burning tank and associated pipelines. In addition, LNAPL was observed at one seep location. The measured LNAPL thickness ranges from a sheen to approximately 2 inches (5 centimeters). Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH), PCBs, and pesticides are all present in the shallow soils (5 to 25 feet) (1.5 to 7.6 meters) within the landfill, which corresponds to the extent of landfill debris, the burn pit, and associated pipelines. Based on the Archive Search and on explorations subsequently completed into the landfill, it is considered unlikely that OEW were disposed of in the landfill.

#### 1.8.1.2 List of Available Documents

Further information regarding conditions at the site is available in the following documents:

- a. *Limited Remedial Investigation Phase II Landfill Site*. URS Greiner Woodward Clyde. Prepared for U.S. Army Corps of Engineers, Seattle District. March 5, 1999.
- b. *Engineering Evaluation/ Cost Analysis, Landfill Site*. URS Greiner Woodward Clyde. Prepared for U.S. Army Corps of Engineers, Seattle District. September 1999.
- c. *Draft Addenda to Limited Remedial Investigation*. URS Greiner Woodward Clyde. Prepared for U.S. Army Corps of Engineers, Seattle District. December 1999.
- d. Memoranda from Cleo T. Brennan to J. Maas re: Results of Tongue point Finger Piers Groundwater Monitoring Program. U.S. Army Corps of Engineers. 1994.
- e. *Tongue Point Former Naval Air Station Landfill Limited Remedial Investigation, Astoria, Oregon*. Shapiro and Associates, Inc. and Applied Geotechnology Inc. 1993. Prepared for U.S. Army Corps of Engineers, Seattle District.



- f. *Former Tongue Point Naval Air Station Finger Pier Sediments Limited Remedial Investigation*. Woodward-Clyde. 1998. Prepared for U.S. Army Corps of Engineers, Seattle District.
- g. *Tongue Point Monitoring Program 1989-1992* Siipola, Mark D., R. L. Emmett, and S. A. Hinton. 1993. Prepared for U.S. Army Corps of Engineers, Portland District.
- h. CARS Inc. *Sediment Investigation*. 1990.

These documents are available for review and may be reviewed at the Seattle District U.S. Army Corps of Engineers office or the Astoria Public Library.

#### 1.8.2 SSHP Requirements

The SSHP shall include a site description and contamination characterization section that addresses the following elements:

- a. Description of site location, topography, size, and past uses of the site; and
- b. A list of contaminants which may present occupational health and safety hazards during site remedial activities. This list shall be created by evaluating the analytical results in this section and by researching sources of information from past site investigation activities. Chemical names, concentration ranges, media in which found, locations on site, and estimated quantities/volumes to be impacted by site work shall be included, if known. The contamination characterization shall be reviewed and revised if new chemicals are identified as work progresses.

#### 1.8.3 Ordnance and Explosive Waste

A potential for OEW within the landfill boundaries has been identified. The USACE Huntsville District conducted an archive search and concluded that it is unlikely that unexploded ordnance (UXO) is present within the landfill. A copy of the OEW Archive Search report is provided in Section 01115 SITE DESCRIPTION, Appendix 01115-B.

If explosives, chemical surety materials/chemical warfare materials (CSM/CWM), or UXO are discovered at any time during operations, Contractor shall immediately stop operations in the affected area, mark the location, notify on-site personnel of the OEW hazard and the area's restrictions, and notify the CO. The Government will make appropriate arrangements for evaluation and proper disposal of each device. The SSHP shall specifically address procedures to be followed, if known or potential CSM/CWM, ordnance, or other such items are encountered during any phase of field work. These procedures shall include the methods and materials used to train employees to recognize potential OEW and CSM/CWM devices; procedures to follow when unknown objects are uncovered; procedures for evacuating the work area; a detailed contact list for

notification and subsequent evaluation of unknown devices; and the proper procedures necessary to clear the work area for re-entry.

## 1.9 SAFETY AND HEALTH HAZARD/RISK ANALYSIS

The SSHP shall include a safety and health hazard/risk analysis for each site task and operation to be performed. The hazard/risk analysis shall provide information necessary for determining safety and health procedures, equipment, and training to protect on-site personnel, the environment, and the public. Available site information shall be reviewed when preparing this section of the SSHP.

The format shall be in accordance with EM 385-1-1, Figure 1-1. The analysis shall define the activities to be performed and identify the sequence of work, the specific hazards anticipated, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level. The analysis shall be continuously reviewed by the site safety and health officer, and when appropriate, modified to address changing site conditions or operations, with the concurrence of the Safety and Health Manager, the Site Superintendent, and the CO. The analysis and any modifications will be integrated into the SSHP.

The following elements will be included in the analysis.

### 1.9.1 Site Tasks and Operations (Work Plan)

The SSHP shall include a comprehensive section that addresses the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives. Based on the type of remediation required, the following is a list of anticipated major site tasks and operations to be performed:

- a. Preparing and implementing a Remedial Action Management Plan (RAMP), which comprises of a series of individual work plans
- b. Site preparatory work, including clearing and grubbing, removing portions of an existing rock revetment, fence removal and relocation, installing temporary erosion and sediment control measures, and developing staging areas
- c. Developing access/haul roads
- d. Providing traffic control
- e. Abandoning and protecting monitoring wells
- f. Installing utilities, including water, electricity, and telephone

- g. Installing a temporary LNAPL collection and storage system, including trench, dewatering, collection piping, trench backfill, and LNAPL collection sumps
- h. Installing of LNAPL skimmer pumps, controls, and LNAPL storage tank
- i. Preparing the landfill surface for preloading (from bottom to top): regrading of the existing landfill surface, followed by incorporating into the landfill chipped and waste material from clearing and grubbing and construction of the LNAPL collection trench
- j. Setting up a local survey grid, conducting initial site survey prior to site preparation, conducting survey after subgrade preparation, installing settlement plates, conducting survey after preloading, surveying volume of imported soil, and conducting surveys for progress quantities of work performed
- k. Installing a temporary LNAPL collection and storage system, including trench, collection piping, trench backfill, and LNAPL collection sumps with skimmer pumps, controls, LNAPL storage tank, stabilized aggregate base course storage tank pad, concrete equipment pad, and pre-engineered compressor building
- l. Placing a 4-inch (10-cm) soil layer and separation geotextile prior to placement of each preload sequence to delineate the subgrade soil from the soil used for preload
- m. Preloading of the landfill site conducted in five sequential sections for approximately 40 to 60 calendar days per section, as approved by the CO
- n. Operation and maintenance during construction and for an optional additional period of 1 year beyond completion of construction, including stormwater and sediment control, monitoring of wells and settlement of the landfill, operation and maintenance of the temporary LNAPL collection and storage system, maintenance of the boom for the control of LNAPL release, and disposal of collected LNAPL

Site tasks and operations are described fully elsewhere in these specifications. The SSHP shall be expanded and/or revised as necessary.

#### 1.9.2 Hazards

The following potential hazards may be encountered during site work. These are not complete lists; therefore, they shall be expanded and/or revised as necessary during preparation of the SSHP.

##### 1.9.2.1 Safety Hazards

The inherent hazards associated with excavation of contaminated soils, as well as importing and placement of design fill material, shall be addressed in the SSHP. The SSHP shall also address

hazards associated with confined space entry in accordance with Confined Space Entry (refer to paragraph 1.10 CONFINED SPACE ENTRY).

The Contractor is advised that heavy equipment shall be used to excavate uncontaminated and contaminated soil and debris, as well as for the grading of the landfill area. Contractor shall include in the SSHP methods to protect workers from all machinery and dust that may be generated by such machinery.

#### 1.9.2.2 Chemical Hazards

Potential chemical hazards that may be encountered during site work are discussed in paragraph 1.8 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION. The Hazard/Risk Analysis section of the SSHP shall describe the chemical, physical, and toxicological properties of contaminants, sources and pathways of employee exposures, anticipated on-site and off-site exposure level potentials, and regulatory (including Federal, state, and local) or recommended protective exposure standards. The SSHP shall also address employee exposure to hazardous substances brought onsite, and shall comply with the requirements of 29 CFR 1910, Section .1200 and 29 CFR 1926, Section .59, Hazard Communication.

#### 1.9.2.3 Physical Agents

A number of physical hazards are anticipated at this site. Noise levels from heavy equipment in use at the site will be measured, and appropriate engineering or personal protective equipment (PPE) requirements made if the OSHA time-weighted average (TWA) permissible exposure limit (PEL) of 85 decibels (dB) is exceeded. Depending on the time of year the work is conducted, and the requisite PPE in use, heat or cold stress must be considered. The Contractor should plan to take ambient temperature measurements to determine the appropriate work-rest regimen to follow (additional information in paragraph 1.17 HEAT AND COLD STRESS MONITORING).

#### 1.9.2.4 Heavy Equipment Use

The Contractor shall ensure that the employees working on heavy equipment are trained in each specific piece of equipment they will be operating. The Contractor shall appraise that employees working around the equipment of the hazards associated with the equipment in use. The Contractor shall ensure that equipment operator's equipment is in proper working order, with all safety features (back-up alarms, brakes, etc.) fully operational. Employees working on the ground shall wear highly visible safety vests, and maintain voice or hand contact with the equipment operators.

#### 1.9.2.5 Radiological Hazards

During LRI field activities performed in 1995, monitoring for ionizing radiation sources was conducted using a Victoreen Model 190 portable survey meter with a thin-window Geiger-Mueller pancake detector. The meter was used for an initial survey of the landfill area and during drilling to identify potential sources of X and/or gamma penetrating radiation (no alpha or beta sources were

ever mentioned in the literature review). No sources were detected. Based on these results, and the past use history of this area, radiological hazards do not appear to be a potential health and safety concern at the Site.

#### 1.9.2.6 Biological Hazards

The Contractor is advised that animals, insects, and toxic plants may be present which could pose a safety or health threat to workers on the site. Direct contact with biological hazards should be avoided. The Contractor shall include in the SSHP methods to protect workers from all biological hazards that may be present.

#### 1.9.3 Action Levels

##### 1.9.3.1 General

Action levels (air monitoring measurements above which specific actions must be taken) shall be established for the situations listed below, at a minimum. The action levels and required actions (engineering controls, changes in PPE, etc.) shall be presented in the SSHP in both text and tabular form and include the following.

- a. When and where specific engineering controls and work practices are to be implemented;
- b. The appropriate level of PPE to wear, and the basis for upgrading or downgrading the attire;
- c. What conditions constitute a work stoppage and/or emergency evacuation of on-site personnel; and
- d. Means of prevention and/or minimization of public exposures to hazards created by site activities.

#### 1.10 CONFINED SPACE ENTRY

Although confined space entry is not anticipated, the Contractor may encounter confined spaces during the excavation and trenching work. A Confined Space Entry Program shall be included in the SSHP. In no case may the Contractor allow entry when oxygen readings are less than 19.5 percent or greater than 23.5 percent or if the Lower Explosive Limit (LEL) reading is greater than 10 percent, unless protective measures for these conditions are adequately addressed in the Confined Space Entry Program. In addition, action levels for toxic atmospheres shall be determined. The Contractor's Confined Space Entry Program shall be in compliance with 29 CFR 1910 Section .146 EM385-1-1.

## 1.11 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

An organizational structure shall be developed that sets forth lines of authority (chain of command), responsibilities, and communication procedures concerning site safety, health, and emergency response. This organizational structure shall cover management, supervisors, and employees of the Contractor and subcontractors. The structure shall include the means for coordinating and controlling work activities of subcontractors and suppliers. The SSHP shall include a description of this organizational structure as well as qualifications and responsibilities of each of the following individuals. The Contractor shall obtain CO's acceptance before replacing any member of the Safety and Health Staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement.

### 1.11.1 Site Superintendent

A Site Superintendent, who has responsibility to implement the SSHP, the authority to direct work performed under this contract and verify compliance, shall be designated.

### 1.11.2 Safety and Health Manager

#### 1.11.2.1 Qualifications

The services of an Industrial Hygienist certified by the American Board of Industrial Hygiene (ABIH) shall be utilized. The name, qualifications (education summary and documentation, ABIH certificate), and work experience summary shall be included in the SSHP. The Safety and Health Manager shall have the following additional qualifications:

- a. A minimum of 3 years experience in developing and implementing safety and health programs at hazardous waste sites;
- b. Documented experience in supervising professional and technician level personnel;
- c. Documented experience in developing worker exposure assessment programs and air monitoring programs and techniques;
- d. Documented experience in the development of PPE programs, including programs for working in and around potentially toxic, flammable and combustible atmospheres and confined spaces; and
- e. Working knowledge of state and Federal occupational safety and health regulations.

#### 1.11.2.2 Responsibilities

The Safety and Health Manager shall:

- a. Be responsible for the development, implementation, and oversight of the SSHP;
- b. Sign and date the SSHP prior to submittal of original and all subsequent revisions;
- c. Prepare and supervise implementation of site-specific training;
- d. Be present on site during the first 3 calendar days of remedial activities and at the startup of each new major phase;
- e. Visit the site as needed and at least once per month for the duration of activities, to audit the effectiveness of the SSHP;
- f. Be available for emergencies;
- g. Provide on site consultation as needed to ensure the SSHP is fully implemented;
- h. Coordinate any modifications to the SSHP with the Site Superintendent, the SSHO, and the CO;
- i. Provide continued support for upgrading/downgrading of the level of PPE;
- j. Develop a site specific air monitoring program and be responsible for collection and evaluation of air monitoring data and recommending changes to engineering controls, work practices, and PPE;
- k. Review accident reports and results of daily inspections; and
- l. Serve as a member of the Contractor's quality control staff.

#### 1.11.3 Site Safety and Health Officer (SSHO)

##### 1.11.3.1 Qualifications of SSHO

An individual and one alternate shall be designated the SSHO. The name, qualifications (education and training summary and documentation), and work experience of the SSHO and alternate shall be included in the SSHP. The SSHO shall have the following qualifications:

- a. A minimum of 2 years experience in implementing safety and health programs at hazardous waste sites where Level C PPE was required;

- b. Documented experience in construction techniques and construction safety procedures;
- c. Working knowledge of Federal and state occupational safety and health regulations; and
- d. Specific training in personal and respiratory protective equipment program implementation, confined space program oversight, and in the proper use of air monitoring instruments, and air sampling methods.

#### 1.11.3.2 Responsibilities of SSHO

The SSHO shall:

- a. Assist and represent the Safety and Health Manager in on-site training and the day to day on-site implementation and enforcement of the accepted SSHP;
- b. Be assigned to the site on a full-time basis for the duration of field activities. The SSHO shall have no duties other than Safety and Health-related duties. If operations are performed during more than 1 work shift per day, a site Safety and Health Officer shall be present for each shift;
- c. Have authority to ensure site compliance with specified safety and health requirements, Federal, state, and OSHA regulations and all aspects of the SSHP including, but not limited to, activity hazard analyses, air monitoring, use of PPE, decontamination, site control, standard operating procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, confined space entry procedures, spill containment program, and preparation of records by performing a daily safety and health inspection and documenting results on the Daily Safety Inspection Log;
- d. Have authority to stop work if unacceptable health or safety conditions exist, and take necessary action to re-establish and maintain safe working conditions;
- e. Consult with and coordinate any modifications to the SSHP with the Safety and Health Manager, the Site Superintendent, and the CO;
- f. Serve as a member of the Contractor's quality control staff on matters relating to safety and health;
- g. Conduct accident investigations and prepare accident reports;
- h. Review results of daily quality control inspections and document safety and health findings into the Daily Safety Inspection Log; and



- i. In coordination with site management and the Safety and Health Manager, recommend corrective actions for identified deficiencies and oversee the corrective actions.

#### 1.11.4 Occupational Physician (OP)

##### 1.11.4.1 Qualifications of OP

The services of a licensed physician, who is certified in occupational medicine by the American Board of Preventative Medicine, or who, by necessary training and experience is Board eligible, shall be utilized. The physician shall be familiar with this site's hazards and the scope of this project. The medical consultant's name, qualifications, and knowledge of the site's conditions and proposed activities shall be included in the SSHP.

##### 1.11.4.2 Responsibilities of OP

The physician shall be responsible for the determination of medical surveillance protocols and for review of examination/test results performed in compliance with 29 CFR 1910, Section .120 (f) and 29 CFR 1926, Section .65 (f) and paragraph 1.14 MEDICAL SURVEILLANCE.

#### 1.11.5 Persons Certified in First Aid and CPR

At least two persons who are currently certified in first aid and CPR by the American Red Cross or other approved agency shall be on site at all times during site operations. They shall be trained in universal precautions and the use of PPE as described in the Bloodborne Pathogens Standard of 29 CFR 1910, Section .1030. These persons may perform other duties but shall be immediately available to render first aid when needed.

#### 1.11.6 Safety and Health Technicians (Not Used)

#### 1.11.7 Certified Health Physicist (CHP) (Not Used)

#### 1.11.8 Certified Safety Professional (CSP) (Not Used)

### 1.12 TRAINING

Personnel shall receive training in accordance with the Contractor's written safety and health training program, 29 CFR 1910 Section .120, 29 CFR 1926 Section .65, 29 CFR 1926 Section .21, 29 CFR 1926 Section .62, 29 CFR 1926 Section .1118, and 29 CFR 1926 Section .1127. The SSHP shall include a section describing training requirements. Attachment 013151-C SAMPLE FORM FOR TRAINING CERTIFICATE is provided at the end of this section.

#### 1.12.1 General Hazardous Waste Operations Training

Personnel entering the exclusion or contamination reduction zones shall have successfully completed 40 hours of hazardous waste instruction off the site; 3 calendar days actual field experience under

the direct supervision of a trained, experienced supervisor; and 8 hours refresher training within 12 months after completion of 40-hour initial training, or within 12 months of time of entry onto site. On-site supervisors shall have completed the above training and 8 hours of additional, specialized training covering at least the following topics: the employer's safety and health program, personal protective equipment program, spill containment program, and health hazard monitoring procedures and techniques. Copies of current training certification statements shall be submitted prior to initial entry onto the work site.

#### 1.12.2 Site-Specific Training

Site-specific training sessions shall be documented in accordance with Section 01.B.03.b of EM 385-1-1.

##### 1.12.2.1 Initial Session (Pre-Entry Briefing)

Prior to commencement of on-site field activities, all site employees, including those assigned only to the SZ, shall attend a site-specific safety and health training session of at least 4 hours duration. This session shall be conducted by the Safety and Health Manager and the SSHO to ensure that all personnel are familiar with requirements and responsibilities for maintaining a safe and healthful work environment. Procedures and contents of the accepted SSHP and Sections 01.B.02 and 28.D.03 of EM 385-1-1 shall be thoroughly discussed. The CO shall be notified at least 5 calendar days prior to the initial site-specific training session so government personnel involved in the project may attend.

##### 1.12.2.2 Periodic Sessions

Periodic on-site training shall be conducted by the SSHO at least weekly during site work for personnel assigned to work at the site during the following 5 to 7 calendar days. The training shall address safety and health procedures, work practices, any changes in the SSHP, activity hazard analyses, work tasks, or schedule; results of previous week's air monitoring, review of safety discrepancies and accidents. Should an operational change affecting on-site field work be made, a meeting prior to implementation of the change shall be convened to explain safety and health procedures. Site-specific training sessions for new personnel, visitors, and suppliers shall be conducted by the SSHO using the training curriculum outlines developed by the Safety and Health Manager.

##### 1.12.2.3 Other Training and Safety Meetings

All work positions in the exclusion and contamination reduction zones will be staffed with personnel who have successfully completed a classroom occupational hazards training program and other training (including annual refresher training) that meets or exceeds the requirements of 29 CFR 1910.120. Required training includes a minimum of 3 calendar days actual field experience under supervision of a trained and experienced supervisor and 8-hour training for supervisors. For those

persons wearing respirators, annual respirator training will be provided as required by substance-specific standards, or under the general program requirements of 1910.134(b).

Joint Health and Safety meetings will be held once work begins on site with all Contractors participating. The Contractor and the CO may request Joint Health and Safety meetings when deemed necessary. The Contractor will take minutes of all Joint Health and Safety Conferences.

## 1.13 PERSONAL PROTECTIVE EQUIPMENT

### 1.13.1 General

In accordance with 29 CFR 1910 Section .120 (g)(5) and 29 CFR 1926 Section .65 (g)(5), a written PPE program which addresses the elements listed in that regulation, and which complies with respiratory protection program requirements of 29 CFR 1910 Section .134, is to be included in the employer's Safety and Health Program. The SSHP shall detail the minimum PPE ensembles (including respirators) and specific materials from which the PPE components are constructed for each site-specific task and operation to be performed, based upon the hazard/risk analysis. Components of levels of protection (B, C, D, and modifications) must be relevant to site-specific conditions, including heat and cold stress potential and safety hazards. Only respirators approved by NIOSH shall be used. On-site personnel shall be provided with appropriate PPE. Protective equipment and clothing shall be kept clean and well-maintained. The PPE section of the SSHP shall include site-specific procedures to determine PPE program effectiveness and for on-site fit-testing of respirators, cleaning, maintenance, inspection, and storage of PPE.

### 1.13.2 Levels of Protection

The Safety and Health Manager shall establish appropriate levels of protection for each work activity based on review of historical site information, existing data, an evaluation of the potential for exposure (inhalation, dermal, ingestion, and injection) during each task, past air monitoring results, and a continuing safety and health monitoring program. The Safety and Health Manager shall also establish action levels for upgrade or downgrade in levels of PPE from the following specified minimum levels of protection. Protocols and the communication network for changing the level of protection shall be described in the SSHP. The PPE reassessment protocol shall address air monitoring results, potential for exposure, changes in site conditions, work phases, job tasks, weather, temperature extremes, individual medical considerations, etc.

#### 1.13.2.1 Components of Levels of Protection

The following items constitute minimum protective clothing and equipment ensembles to be utilized during this project:

Level A

Not anticipated for this site.

Level B

Not anticipated for this site.

Level C

Level C, to be used during work with contaminated materials or hazardous wastes, includes for this project disposable coveralls, chemical-resistant safety boots, outer gloves and inner gloves, eye protection, and a hard hat. An air-purifying respirator (APR) with appropriate cartridges may be necessary.

Level D

Level D, to be used for non-sampling and non-excavation portions of the site work, includes, at a minimum, coveralls or similar work clothing, chemical-resistant safety boots, safety glasses, and hard hat. Work gloves will be worn as necessary to avoid skin contact with sharp objects or rough edges on equipment.

1.13.2.2 Initial Minimum Levels of PPE by Task

Based on available information, the initial minimum protective equipment requirements for each major task and operation are listed in Table 01351-1. Available site information shall be reviewed and the list of tasks and operations and these levels of protection shall be expanded and/or revised during preparation of the SSHP.

**Table 01351-1**  
**INITIAL MINIMUM PROTECTIVE EQUIPMENT REQUIREMENTS**

<b>Task/Operation</b>	<b>Initial Level of Protection</b>
Site preparation	D
Abandoning and protecting monitoring wells	D
Excavation and installation of temporary LNAPL collection trench	C
Landfill preloading	D
Monitoring, operation, and maintenance	D

1.13.3 PPE for Government Personnel

Three clean sets of PPE and clothing (excluding air-purifying negative-pressure respirators and safety shoes, which will be provided by individual visitors), as required for entry into the EZ and/or CRZ, shall be available for use by the CO or official visitors. The items shall be cleaned and maintained by Contractor and stored as to provide adequate protection from contaminants and clearly marked: "FOR USE BY GOVERNMENT ONLY." Contractor shall provide basic training in the use and limitations of the PPE provided, and institute administrative controls to check prerequisites prior to issuance. Such prerequisites include meeting minimum training requirements for the work tasks to be performed and medical clearance for site hazards and respirator use.

## 1.14 MEDICAL SURVEILLANCE

The Safety and Health Manager, in conjunction with the OP, shall detail, in the employer's Safety and Health Program and the SSHP, the medical surveillance program that includes scheduling of examinations, certification of fitness for duty, compliance with OSHA requirements, and information provided to the physician. Examinations shall be performed by or under the supervision of a licensed physician, one board certified or eligible in occupational medicine, and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place. Medical surveillance protocols and examination and test results shall be reviewed by the OP. The medical surveillance program shall contain the requirements specified below. Personnel working in contaminated areas of the site shall have been examined as prescribed in 29 CFR 1910 Section .120, and 29 CFR 1926 Section .65, and determined medically fit to perform their duties.

### 1.14.1 Frequency of Examinations

Employees shall have been provided with medical examinations as specified, within the past 12 months and shall receive exams annually thereafter (if contract duration exceeds 1 year); on termination of employment; reassignment in accordance with 29 CFR 1910 Section .120 (f)(3)(i), and 29 CFR 1926 Section .65 (f)(3)(i)(C); if the employee develops signs or symptoms of illness related to workplace exposures; if the physician determines examinations need to be conducted more often than once a year; and when an employee develops a lost time injury or illness during the period of this contract. The supervisor shall be provided with a written statement signed by the physician prior to allowing the employee to return to the work site after injury or illness resulting in a lost workday, as defined in 29 CFR 1904 Section .12 (f).

### 1.14.2 Content of Examinations

The following elements shall be included in the medical surveillance program. Additional elements may be included at the discretion of the OP responsible for reviewing the medical surveillance protocols.

- a. Complete medical and occupational history (initial exam only);
- b. General physical examination of major organ systems;
- c. Pulmonary function testing including Forced Vital Capacity (FVC) and Forced Expiratory Volume in 1 Second (FEV<sup>1.0</sup>);
- d. Complete blood count (CBC) with differential;
- e. Blood chemistry screening profile (e.g., SMAC 20/25);
- f. Urinalysis with microscopic examination;

- g. Audiometric testing (as required by Hearing Conservation Program);
- h. Visual acuity;
- i. Chest x-ray. (This test is optional and should only be performed for specific individuals if so directed by OP.);
- j. Electrocardiogram (optional, as directed by OP);
- k. Urine heavy metals (arsenic, cadmium, chromium, and mercury);
- l. Serum lead; and
- m. Zinc protoporphyrin.

#### 1.14.3 Information Provided to the OP

The physician shall be furnished with the following:

- a. This SSHP;
- b. Information on each employee's anticipated or measured exposure;
- c. Description of any PPE used or to be used, by employee;
- d. Description of the employee's duties as they relate to the employee's potential or actual exposures (including physical demands on the employee and heat/cold stress);
- e. Copy of 29 CFR 1910 Section .120, or 29 CFR 1926 Section .65;
- f. Information from previous examinations not readily available to the examining physician;
- g. Copy of Section 5.0 of NIOSH Pub No. 85-115; and
- h. Information required by 29 CFR 1910 Section .134.

#### 1.14.4 Physician's Written Opinion

Before work begins, a copy of the physician's written opinion for each employee shall be obtained and furnished to the Safety and Health Manager and the employee, and included in the SSHP (without Social Security Number). The opinion shall address the employee's ability to perform hazardous remediation work and shall contain the following:

- a. The physician's recommended limitations upon the employee's assigned work and/or PPE usage; and
- b. A statement that the employee has been informed and advised about the results of the examination.

#### 1.14.5 Medical Records

Documentation of medical exams shall be provided as part of the Certificate of Worker or Visitor Acknowledgment. Medical records shall be maintained in accordance with 29 CFR 1910 Section .120, and 29 CFR 1926 Section .65.

#### 1.15 RADIATION DOSIMETRY (NOT USED)

#### 1.16 EXPOSURE MONITORING/AIR SAMPLING PROGRAM

The contractor, with assistance from their Project Health and Safety Manager (a CIH), shall develop and implement a project specific air monitoring program. The purpose of the program is to:

- a. Identify and quantify potential airborne contaminants that may evolve or be generated during site activities
- b. Develop control strategies needed to minimize employee exposure to airborne contaminants.
- c. Verify compliance with OSHA and State of Oregon permissible exposure limits for site contaminants including, but not limited to, total organic vapors, benzene, PCBs, arsenic, cadmium and lead.

The contractor may utilize direct reading instrumentation and/or collect employee breathing zone samples to verify compliance with section.

#### 1.17 HEAT AND COLD STRESS MONITORING

The Safety and Health Manager shall develop a heat stress and cold stress monitoring program for on-site activities. Details of the monitoring program, including schedules for work and rest, and physiological monitoring requirements, shall be described in the SSHP. Personnel shall be trained to recognize the symptoms of heat and cold stress. The SSHO and an alternate person shall be designated, in writing, to be responsible for the heat and cold stress monitoring program.

##### 1.17.1 Heat Stress

Physiological monitoring shall commence when the ambient temperature is above 70 degrees F (°F) or 21.1 degrees Celsius (°C). Monitoring frequency shall increase as the ambient temperature

increases or as slow recovery rates are observed. Shaded rest areas and an adequate supply of cool drinking water shall be provided for the workers. NIOSH Pub No. 85-115 shall be consulted for guidance in determining protocols for prevention of heat stress.

#### 1.17.2 Cold Stress

To guard against cold injury, appropriate clothing and warm shelter for rest periods shall be provided. Procedures to monitor and avoid cold stress shall be followed in accordance with the current threshold limit values for Cold Stress as recommended in ACGIH-02.

### 1.18 SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES

The SSHP shall describe the standard operating safety procedures, engineering controls, and safe work practices to be implemented for the work covered. These shall include, but not be limited to, the following.

#### 1.18.1 General Site Rules/Prohibitions

General site rules/prohibitions will be followed; including: use of the buddy system; prohibiting eating, drinking, chewing tobacco or applying cosmetics while in any designated work zones at the site; having communications available with emergency responders off site (cell phone, radio); and the prohibition of alcohol or drug use while on site. (Note that the use of individual, non-behavior altering prescription drugs will be allowed. These are drugs that do not produce drowsiness, inattentiveness or slow reaction times.)

#### 1.18.2 Work Permit Requirements

The Contractor is responsible for obtaining any permits necessary for work at this Site.

#### 1.18.3 Material Handling Procedures

Excavated materials shall be handled in a manner to reduce the production of airborne contaminants. Liquids and residues shall be removed from the tanks using explosion-proof or air-driven pumps. Pump motors and suction hoses shall be bonded to the tank and grounded to prevent electrostatic ignition hazards. Use of a hand pump will be permitted to remove the last of the liquid from the bottom of the tanks. If a vacuum truck is used for removal of liquids or residues, the area of operation for the vacuum truck shall be vapor free. The truck shall be located upwind from the tank and outside the path of probable vapor travel. The vacuum pump exhaust gases shall be discharged through a hose of adequate size and length downwind of the truck and tank area. Vacuum truck operating and safety practices shall conform to API Publ 2219. Tank residues shall be collected in drums, tanks, or tank trucks labeled according to 49 CFR 171 and 49 CFR 172 and disposed of as specified.



#### 1.18.4 Drum and Container Handling

Drums containing purge water, decontamination water, soil cuttings, and other waste materials will be moved using proper drum moving techniques, to a site location to be determined based on information developed during the initial site visit. Based on previous investigations at the Site, no buried drums are anticipated to be encountered during intrusive-work conducted by the Contractor. However, because the Site is a former landfill, buried drums may be encountered.

#### 1.18.5 Confined Space Entry Procedures

See paragraph 1.10 CONFINED SPACE ENTRY.

#### 1.18.6 Hot Work

No hot work is anticipated for this project. However, if the Contractor must use welding or cutting equipment to perform specific work tasks, hot work safety procedures will be included in the SSHP.

#### 1.18.7 Ignition Sources

No ignition sources are anticipated or permitted to be present at this site. See paragraph 1.18.6 HOT WORK if hot work becomes necessary. This includes smoking, open flames or fires.

#### 1.18.8 Fire Protection and Prevention

Appropriate measures regarding housekeeping and other activities to reduce or eliminate the risk of fires shall be covered in the SSHP.

#### 1.18.9 Electrical Safety

Electrical extension cords shall not be used except for temporary job site requirements. Approval for any other use must be obtained from the SSHO.

All temporary electrical equipment used on the job site will be listed by an approved testing laboratory for the specific application. All temporary electrical installations must conform to the National Electric Code.

- a. Damaged electric cords shall be removed from service and be replaced.
- b. All generators and electrical equipment must be properly grounded; and
- c. Ground fault circuit interrupters (GFCIs) will be used on electrical equipment.

#### 1.18.10 Excavation and Trench Safety

The Contractor shall comply with all applicable federal, state, and local requirements pertaining to excavation safety. At a minimum Site personnel will be cautioned to stand clear of all powered equipment and open excavations. Equipment must be positioned at least 4 feet (1.2 meters) away from the edges of the excavation. Use of a utility locator prior to digging is required. Site personnel will not enter any excavations of 5 feet or greater depth without proper shoring or sloping.

#### 1.18.11 Locating Utilities

The Contractor shall locate all above ground and underground utilities in work zones that could be struck or damaged during site operations. If necessary, the contractor will employ the services of a utility locating company to identify underground utilities. A minimum of 10 feet clearance shall be maintained between equipment and overhead power lines. Greater distances may be required depending on line voltage and local requirements.

#### 1.18.12 Guarding of Machinery and Equipment

Proper guarding of moving parts of machinery is not necessary for special attention in this plan. If any machine guard on earth moving or drill rig equipment is removed, it must be replaced prior to restarting the equipment.

#### 1.18.13 Lockout/Tagout

The Contractor must maintain its own Lockout/Tagout program for equipment it brings to the site, as well as for the use of any site utilities (i.e. steam, electricity, pressurized water, etc.).

#### 1.18.14 Fall Protection

It is not anticipated that working from heights will be required for this project.

#### 1.18.15 Hazard Communication

The Contractor will provide the appropriate level of Hazard Communication training to their employees, specific to those chemicals anticipated to be encountered while conducting intrusive work on site, as well as chemicals used as sample preservatives and/or cleaning agents.

#### 1.18.16 Illumination

All work shall be conducted during daylight hours, only. Site illumination is therefore not a concern for this project.

#### 1.18.17 Sanitation

No sanitation facilities will be provided by the Government on the work Site. The Contractor shall provide and maintain appropriate sanitation facilities on the work site including both toilet and hand/face wash facilities.

#### 1.18.18 Engineering Controls

Use of Engineering Controls to minimize generation of dust shall be specified in the SSHP. The recommended action level for total dust is 4 milligrams per cubic meter (mg/m<sup>3</sup>). This is based on the following equation:

Airborne Dust/Particulate Action Level (Lead): =

$$\frac{PEL}{C_s} = \frac{0.03 \text{ mg/m}^3 \text{ CF}}{8,150 \text{ mg/kg}}$$
$$= \frac{4.0 \text{ mg Total Dust}}{\text{m}^3 \text{ air}}$$

Where:

CF = Conversion factor (10<sup>6</sup> milligram per kilogram [mg/kg])  
C<sub>s</sub> = Maximum soil contaminant concentration detected on site: 8,150 mg/kg lead (Pb)  
PEL = 0.03 mg/m<sup>3</sup> (OR-OSHA Action Level for lead)

(Note: Although lead is likely to be present in minor amounts [relative to organics or petroleum-related constituents], it was used because it has an established Action Level that is low enough to offer conservative protection.)

#### 1.18.19 Process Safety Management

There are no industrial processes to be sampled during this project, so this item is not relevant to work at this site.

#### 1.18.20 Signs and Labels

Labeling of all samples and/or disposal materials shall be in accordance with appropriate state and Federal regulations. Warning signs will also be posted in accordance with appropriate state and Federal regulations.

#### 1.18.21 Waste Disposal

Waste products shall be stored in appropriate containers, which are emptied on a regular basis. Waste containers shall be removed from the work area and disposed of in accordance with Federal, state, and local regulations.

#### 1.18.22 Tank Purging for Permit-Required Confined Space Entries (Not Used)

#### 1.18.23 Tank Inerting (Not Used)

#### 1.18.24 Tank Atmosphere Testing (Not Used)

#### 1.18.25 Tank Lifting

Tanks shall be lifted using equipment with a rated capacity greater than the load to be lifted. Tanks shall be lifted by lifting eyes or by straps under the ends of the tanks. Tanks shall not be lifted by the manhole flange or by removing the bungs. Personnel shall be directed to remain away from the ends of the tanks and tanks shall be positioned, whenever possible, with the ends oriented away from occupied or traveled areas, due to potential for rupture. During transportation, the tanks shall be secured to prevent movement.

#### 1.18.26 Tank Demolition (Not Used)

#### 1.18.27 Tank Cleaning (Not Used)

### 1.19 SITE CONTROL MEASURES

To prevent the spread of contamination and control the flow of personnel, vehicles, and materials into and out of work areas, site control measures shall be established and described in the SSHP. The SSHP shall describe the methodology to be used by the Safety and Health Manager and SSHO in determining work zone designations and their modifications, and procedures to limit the spread of contamination. The SSHP shall include procedures for the implementation and enforcement of safety and health rules for all persons on the site, including employers, employees, outside Contractors, government representatives, and visitors.

#### 1.19.1 Work Zones

Initial anticipated work zone boundaries are shown on the Drawings. Utilizing this guidance, work zone boundaries (EZ, including restricted and regulated areas; CRZ; and SZ) and access points shall be established and the boundary delineations shall be included on the Drawings and in the SSHP. Delineation of work zone boundaries shall be based on the contamination characterization data and the hazard/risk analysis to be performed as described in paragraph 1.19 SAFETY AND HEALTH HAZARD/RISK ANALYSIS. As work progresses and field conditions are monitored, work zone boundaries may be modified with approval of the CO. Work zones shall be clearly identified and marked in the field (using fences, tape, signs, etc.). A site map, showing work zone

boundaries and locations of decontamination facilities, shall be posted in the on-site office. Work zones shall consist of the following:

- a. **Exclusion Zone.** The EZ is the area where hazardous contamination is either known or expected to occur and the greatest potential for exposure exists. Entry into this area shall be controlled and exit may only be made through the CRZ.
- b. **Contamination Reduction Zone.** The CRZ is the transition area between the EZ and the SZ. The personnel and equipment decontamination areas shall be separate and unique areas located in the CRZ.
- c. **Support Zone.** The SZ is defined as areas of the site, other than exclusion zones and contamination reduction zones, where workers do not have the potential to be exposed to hazardous substances or dangerous conditions resulting from hazardous waste operations. The SZ shall be secured against active or passive contamination. Site offices, parking areas, and other support facilities shall be located in the SZ.

#### 1.19.2 Site Control Log

A log of personnel visiting, entering, or working on the site shall be maintained. The log shall include the following: date, name, agency or company, time entering and exiting site, time entering and exiting the exclusion zone (if applicable), and PPE utilized. Before visitors are allowed to enter the CRZ or EZ, they shall show proof of current training, medical surveillance, and respirator fit testing (if respirators are required for the tasks to be performed) and shall fill out the Certificate of Worker or Visitor Acknowledgment. This visitor information, including date, shall be recorded in the log.

#### 1.19.3 Communication

An employee alarm system that has adequate means of on- and off-site communication shall be provided and installed in accordance with 29 CFR 1910 Section .165. The means of communication shall be able to be perceived above ambient noise or light levels by employees in the affected portions of the work place. The signals shall be distinctive and recognizable as messages to evacuate or to perform critical operations. This includes the use of walkie talkies, radios, and telephones.

#### 1.19.4 Site Security

Only authorized individuals will be allowed to enter the EZ. Control measures to exclude the public and unauthorized visitors will be established. Signs shall be printed in bold large letters on contrasting backgrounds in English and/or where appropriate, in the predominant language of workers unable to read English. Signs shall be visible from all points where entry might occur and at such distances from the restricted area that employees may read the signs and take necessary protective steps before entering.

## 1.20 PERSONAL HYGIENE AND DECONTAMINATION

Personnel entering the EZ or CRZ or otherwise exposed or subject to exposure to hazardous chemical vapors, liquids, or contaminated solids shall adhere to the following personal hygiene and decontamination provisions. Decontamination shall be performed in the CRZ prior to entering the SZ from the EZ. Chapter 10.0 of NIOSH Pub No. 85-115 shall be consulted when preparing decontamination procedures. A detailed discussion of personal hygiene and decontamination facilities and procedures to be followed by site workers shall be submitted as part of the SSHP. Employees shall be trained in the procedures and the procedures shall be enforced throughout site operations. Persons disregarding these provisions of the SSHP shall be barred from the Site.

### 1.20.1 Personnel Decontamination Facilities

A personnel decontamination facility in the CRZ shall be provided by the Contractor. This facility shall be used by both the Contractor personnel and government representatives. The decontamination facility shall provide for separation of street clothing and contaminated PPE and shall be equipped with heating, lighting, ventilation, a change room and lockers, hot and cold water, shower facilities with hot and cold water, towels, soap in sufficient quantities for all anticipated personnel, and wastewater storage facilities for controlling the disposal of used water. Laundry facilities or provisions of laundry service are also required. If an off-site laundry service is used, they shall be notified, in writing, of the possibility and nature of contaminants expected on clothing. Provisions for appropriate separation of the sexes in the decontamination facility shall be made by the Contractor.

### 1.20.2 Decontamination Procedures

Minimum decontamination procedures shall be specified in the SSHP. Available site information shall be reviewed and these procedures shall be expanded and/or revised for submittal as part of the SSHP, as necessary.

## 1.21 EQUIPMENT DECONTAMINATION

Vehicles and equipment used in the EZ shall be decontaminated in the CRZ prior to leaving the site. The procedures for decontamination of vehicles and equipment shall be addressed in the SSHP.

### 1.21.1 Decontamination Facilities

A vehicle/equipment decontamination station shall be provided so that the Contractor decontaminates vehicles and equipment prior to leaving the site. The Contractor shall provide vehicle decontamination stations within the CRZ for decontaminating vehicles and equipment leaving the EZ as these zones are defined by the Contractor. The Contractor shall provide equipment decontamination facilities for decontaminating drilling/abandonment equipment after each well.

Coordinate with the requirements of Section 02679 WELL ABANDONMENT AND PROTECTION.

#### 1.21.2 Decontamination Procedures

Procedures for equipment decontamination shall be developed and utilized to prevent the spread of contamination into the SZ and off-site areas. These procedures shall address disposal of contaminated products and spent materials used on the site, including containers, fluids, oils, etc. Any item taken into the EZ shall be assumed to be contaminated and shall be inspected and/or decontaminated before the item leaves the area. Vehicles, equipment, and materials shall be cleaned and decontaminated prior to leaving the site or prior to being used for the next well in the case of drilling/abandonment equipment. Construction material shall be handled in such a way as to minimize the potential for contaminants being spread and/or carried off site. Prior to exiting the site, vehicles and equipment shall be monitored to ensure the adequacy of decontamination.

#### 1.22 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

The SSHP shall describe the emergency and first aid equipment to be available onsite. The following items, as a minimum, shall be maintained onsite and available for immediate use:

- a. First aid equipment and supplies approved by the consulting physician;
- b. Emergency eyewashes and showers which comply with ANSI Z358.1;
- c. Emergency-use respirators. The SSHP shall provide a rationale for whether emergency respirators are needed for the phase involving excavation/new exposure of surface soils. If needed, the Contractor shall provide the respirators onsite. These shall be dedicated for emergency use only and maintained on site in the CRZ; and
- d. Fire extinguishers shall be provided at site facilities and in all vehicles and at any other site locations where flammable materials present a fire risk.

#### 1.23 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

An Emergency Response Plan, which meets the requirements of 29 CFR 1910 Section .120 (I) and 29 CFR 1926 Section .65 (I), shall be developed and implemented as a section of the SSHP. In the event of any emergency associated with remedial action, the Contractor shall, without delay, alert all on-site employees that there is an emergency situation; take action to remove or otherwise minimize the cause of the emergency; alert the CO; and institute measures necessary to prevent repetition of the conditions or actions leading to, or resulting in, the emergency. Employees that are required to respond to hazardous emergency situations shall be trained in how to respond to such expected emergencies. The plan shall be rehearsed regularly as part of the overall training program for site operations. The plan shall be reviewed periodically and revised as necessary to reflect new

or changing site conditions or information. Copies of the accepted SSHP and revisions shall be provided to the affected local emergency response agencies. The following elements, as a minimum, shall be addressed in the plan:

- a. Pre-emergency planning. The local emergency response agencies shall be contacted and met with during preparation of the Emergency Response Plan. Agencies to be contacted include local fire, police, and rescue authorities with jurisdiction and nearby medical facilities that may be utilized for emergency treatment of injured personnel. At these meetings, the agencies shall be notified of upcoming site activities and potential emergency situations. The response agencies' capabilities shall be ascertained and written response commitments obtained. Contractor shall ensure the Emergency Response Plan for the site is compatible and integrated with the disaster, fire and/or emergency response plans of local, state, and Federal agencies;
- b. Personnel roles, lines of authority, communications for emergencies;
- c. Emergency recognition and prevention;
- d. Site topography, layout, and prevailing weather conditions;
- e. Criteria and procedures for site evacuation (emergency alerting procedures, employee alarm system, emergency PPE and equipment, safe distances, places of refuge, evacuation routes, site security and control);
- f. Specific procedures for decontamination and medical treatment of injured personnel;
- g. Route maps to nearest prenotified medical facility. Site-support vehicles shall be equipped with maps. At the beginning of project operations, drivers of the support vehicles shall become familiar with the emergency route and the travel time required;
- h. Emergency alerting and response procedures including posted instructions and a list of names and telephone numbers of emergency contacts (physician, nearby medical facility, fire and police departments, ambulance service, Federal, state, and local environmental agencies; as well as Safety and Health Manager, the Site Superintendent, the CO and/or their alternates);
- i. Criteria for initiating community alert program, contacts, and responsibilities;
- j. Procedures for reporting incidents to appropriate government agencies. In the event that an incident such as an explosion or fire, or a spill or release of toxic materials occurs during the course of the project, the appropriate government agencies shall be immediately notified. In addition, the CO shall be verbally notified immediately and receive a written notification within 24 hours. The report shall include the following items:



- (1) Name, organization, telephone number, and location of the Contractor;
- (2) Name and title of the person(s) reporting;
- (3) Date and time of the incident;
- (4) Location of the incident, i.e., site location, facility name;
- (5) Brief summary of the incident giving pertinent details including type of operation ongoing at the time of the incident;
- (6) Cause of the incident, if known;
- (7) Casualties (fatalities, disabling injuries);
- (8) Details of any existing chemical hazard or contamination;
- (9) Estimated property damage, if applicable;
- (10) Nature of damage, effect on contract schedule;
- (11) Action taken to ensure safety and security; and
- (12) Other damage or injuries sustained, public or private.

k. Procedures for critique of emergency responses and follow-up.

Attachment 01351-D SAMPLE FORM FOR HEALTH AND SAFETY INCIDENT REPORT is provided at the end of this section.

#### 1.24 CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT

A copy of a Contractor-generated certificate of worker/visitor acknowledgment shall be completed and submitted for each visitor allowed to enter contamination reduction or exclusion zones, and for each employee, following the example certificate at the end of this section.

#### 1.25 INSPECTIONS

The SSHO shall perform daily inspections of the job site and the work in progress to ensure compliance with EM 385-1-1, the Safety and Health Program, the SSHP, and other occupational health and safety requirements of the contract, and to determine the effectiveness of the SSHP. Procedures for correcting deficiencies (including actions, timetable, and responsibilities) shall be described in the SSHP. Follow-up inspections to ensure correction of deficiencies shall be

conducted and documented. Daily safety inspection logs shall be used to document the inspections, noting safety and health deficiencies, deficiencies in the effectiveness of the SSHP, and corrective actions taken. The SSHO's Daily Inspection Logs shall be attached to and submitted with the Daily Quality Control reports. Each entry shall include the following: date, work area checked, employees present in work area, PPE and work equipment being used in each area, special safety and health issues and notes, and signature of preparer. In the event of an accident, the CO shall be notified according to EM 385-1-1. Within 2 working days of any reportable accident, an Accident Report shall be completed on ENG Form 3394 and submitted.

#### 1.26 SAFETY AND HEALTH PHASE-OUT REPORT

A Safety and Health Phase-Out Report shall be submitted within 10 working days following completion of the work, prior to final acceptance of the work. The following minimum information shall be included:

- a. Summary of the overall performance of safety and health (accidents or incidents including near misses, unusual events, lessons learned, etc.);
- b. Final decontamination documentation including procedures and techniques used to decontaminate equipment, vehicles, and on-site facilities;
- c. Summary of exposure monitoring and air sampling accomplished during the project; and
- d. Signatures of Safety and Health Manager and SSHO.

### **PART 2 PRODUCTS (NOT USED)**

### **PART 3 EXECUTION (NOT USED)**

**Attachment 01351-A**  
**SAMPLE FORM FOR ON-SITE SAFETY MEETING/TAILGATE MEETING**  
**DOCUMENTATION**

<b>Project Name:</b> _____	<b>Date:</b> _____
<b>Location:</b> _____	<b>Start Time:</b> _____
<b>Conducted By:</b> _____	<b>Stop Time:</b> _____

<b>Topics Covered:</b> _____

<b>Comments:</b> _____

<b>ATTENDANCE:</b>			
<b>Name (print):</b> _____	<b>Signature:</b> _____		
<b>Name (print):</b> _____	<b>Signature:</b> _____		
<b>Name (print):</b> _____	<b>Signature:</b> _____		
<b>Name (print):</b> _____	<b>Signature:</b> _____		
<b>Name (print):</b> _____	<b>Signature:</b> _____		

**Attachment 01351-B**  
**SAMPLE FORM FOR CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT**

PROJECT NAME \_\_\_\_\_ CONTRACT NO. \_\_\_\_\_  
PROJECT ADDRESS \_\_\_\_\_  
CONTRACTOR'S NAME \_\_\_\_\_  
[EMPLOYEE'S][VISITOR'S] NAME \_\_\_\_\_

The contract for the above project requires the following: that you be provided with and complete formal and site-specific training; that you be supplied with proper personal protective equipment including respirators; that you be trained in its use; and that you receive a medical examination to evaluate your physical capacity to perform your assigned work tasks, under the environmental conditions expected, while wearing the required personal protective equipment. These things are to be done at no cost to you. By signing this certification, you are acknowledging that your employer has met these obligations to you.

I HAVE READ, UNDERSTAND AND AGREE TO FOLLOW THE SITE SAFETY AND HEALTH PLAN FOR THIS SITE.

Name \_\_\_\_\_ Date \_\_\_\_\_

FORMAL TRAINING: I have completed the following formal training courses that meet OSHA's requirements:

Date Completed	40 hour: _____
	8 hour supervisory: _____
	8 hour refresher: _____

SITE-SPECIFIC TRAINING: I have been provided and have completed the site-specific training required by this Contract. The Site Safety and Health Officer conducted the training.

\_\_\_\_\_

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in [The Contractor's] [my Employer's] Respiratory Protection program. I have been trained in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair policy. \_\_\_\_\_

RESPIRATOR FIT-TEST TRAINING: I have been trained in the proper selection, fit, use, care, cleaning, and maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in [The Contractor's] [my employer's] Respiratory Program and have received a satisfactory fit. [I have been assigned my individual respirator.] I have been taught how to

**Attachment 01351-B (Continued)**  
**SAMPLE FORM FOR CERTIFICATE OF WORKER/VISITOR ACKNOWLEDGMENT**

properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time. \_\_\_\_\_

MEDICAL EXAMINATION: I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray. A physician made determination regarding my physical capacity to perform work tasks on the project while wearing protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

☐ were no limitations to performing the required work tasks;  
☐ were identified physical limitations to performing the required work tasks.

Date medical exam completed \_\_\_\_\_

[Employee's][Visitor's] Signature \_\_\_\_\_

Date \_\_\_\_\_ Printed Name \_\_\_\_\_

Social Security Number \_\_\_\_\_

The Contractor's Site Safety and Health Officer Signature \_\_\_\_\_

Date \_\_\_\_\_ Printed Name \_\_\_\_\_

Social Security Number \_\_\_\_\_

**Attachment 01351-C**  
**SAMPLE FORM FOR TRAINING CERTIFICATE**

FORMAL TRAINING: I have completed the following formal training courses that meet OSHA's requirements

Date Completed

40 hour: \_\_\_\_\_

8 hour supervisory: \_\_\_\_\_ 8 hour refresher: \_\_\_\_\_

SITE-SPECIFIC TRAINING: I have been provided and have completed the site-specific training required by this Contract. The Site Safety and Health Officer conducted the training.

RESPIRATORY PROTECTION: I have been trained in accordance with the criteria in [the Contractor's] [my Employer's] Respiratory Protection program. I have been trained in the proper work procedures and use and limitations of the respirator(s) I will wear. I have been trained in and will abide by the facial hair policy. \_\_\_\_\_

RESPIRATOR FIT-TEST TRAINING: I have been trained in the proper selection, fit, use, care, cleaning, and maintenance, and storage of the respirator(s) that I will wear. I have been fit-tested in accordance with the criteria in [the Contractor's] [my employer's] Respiratory Program and have received a satisfactory fit. [I have been assigned my individual respirator.] I have been taught how to properly perform positive and negative pressure fit-check upon donning negative pressure respirators each time. \_\_\_\_\_

MEDICAL EXAMINATION: I have had a medical examination within the last twelve months which was paid for by my employer. The examination included: health history, pulmonary function tests and may have included an evaluation of a chest ax-ray. A physician made determination regarding my physical capacity to perform work tasks on the project while wearing protective equipment including a respirator. I was personally provided a copy and informed of the results of that examination. My employer's industrial hygienist evaluated the medical certification provided by the physician and checked the appropriate blank below. The physician determined that there:

\_\_\_ were no limitations to performing the required work tasks;

\_\_\_ were identified physical limitations to performing the required work tasks.

Date medical exam completed

[Employee's][Visitor's] Signature \_\_\_\_\_

Date \_\_\_\_\_

Printed Name \_\_\_\_\_

Social Security Number \_\_\_\_\_

Contractor's Site Safety and Health Officer Signature \_\_\_\_\_

Date \_\_\_\_\_

Printed Name \_\_\_\_\_

Social Security Number \_\_\_\_\_

**Attachment 01351-D**  
**SAMPLE FORM FOR HEALTH AND SAFETY INCIDENT REPORT**

Project Name: _____	TYPE OF INCIDENT (Check all applicable items)	
Project Number: _____	<input type="checkbox"/> Illness	<input type="checkbox"/> Fire, explosion, flash
Date of Incident: _____	<input type="checkbox"/> Injury	<input type="checkbox"/> Unexpected exposure
Time of Incident: _____	<input type="checkbox"/> Property damage	<input type="checkbox"/> Vehicular accident
Location: _____	<input type="checkbox"/> Health and safety infraction	
_____	<input type="checkbox"/> Other (describe) _____	
<p><b>DESCRIPTION OF INCIDENT</b> (Describe what happened and possible cause. Identify individual involved, witnesses, and their affiliations; and describe emergency or corrective action taken. Attach additional sheets, drawings, or photographs as needed.)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>		
Reporter: _____		
_____	_____	_____
Print Name	Signature	Date
<p>Reporter must deliver this report to the Operating Unit Health &amp; Safety Officer within 24 hours of the reported incident for medical treatment cases and within five calendar days for other incidents.</p>		
Reviewed by: _____		
Operating Unit Health and Safety Officer		Date
Distribution by Health and Safety Officer:		
<ul style="list-style-type: none"><li>- USACE Health and Safety Officer</li><li>- Contractor Health and Safety Officer</li><li>- Project Manager</li><li>- Personnel Office (medical treatment cases only)</li></ul>		

**END OF SECTION**

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## **SECTION 01400**

### **REMEDIAL ACTION MANAGEMENT PLAN**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

This section provides, in conjunction with other referenced sections, general requirements for the Contractor's Remedial Action Management Plan (RAMP). The RAMP refers to a set of plans and designs to be submitted by the Contractor before commencement of the site work. The RAMP provides detailed and specific designs, procedures, methods, and layouts for accomplishment of the work as specified and delineated in the contract documents.

The RAMP documents shall supplement the Contract Drawings and Specifications during execution of the work, and are intended to ensure that site remediation meets all required treatment standards, while being accomplished by means which are protective of worker safety and health, the public, and the environment. Preparation of the RAMP will demonstrate to the Contracting Officer (CO) and reviewing Governmental agencies that the Contractor is well-prepared and capable of completing the site remediation as planned.

##### **1.2 SUBMITTALS**

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Data

RAMP; GA.

The Contractor shall prepare and submit a Draft and a Final RAMP for Government review and approval. The RAMP shall consist of the individual plans and designs listed below, and the Draft RAMP shall be submitted with all sections of the RAMP complete. Principal sections discussing each plan and design are also listed; however, the Contractor shall review all Specification sections for complete RAMP document requirements and content. The Final RAMP shall require approval by the CO before site mobilization and any field work may commence. The CO may allow the Contractor to begin limited or conditional work based on approvals of sections of the RAMP, at the CO's discretion. The Contractor shall attend the Pre-Construction Conference.

<u>PLAN</u>	<u>RELATED SECTION(S)</u>	
Initial Project Schedule	SECTION 01320	PROJECT SCHEDULE
Site Safety and Health Plan	SECTION 01351	SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW)
Environmental Protection Plan	SECTION 01410	ENVIRONMENTAL PROTECTION
Contractor Quality Control Plan	SECTION 01451	CONTRACTOR QUALITY CONTROL
Site Plan	SECTION 01500	TEMPORARY CONSTRUCTION FACILITIES
Care and Diversion of Water Work Plan	SECTION 01560	CARE AND DIVERSION OF WATER
Waste Management Plan	SECTION 02120	TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS
	SECTION 02230	CLEARING AND GRUBBING
Trench Installation Plan	SECTION 02317	LNAPL COLLECTION TRENCH

### 1.3 RAMP SUBMITTAL SCHEDULE

#### 1.3.1 Draft RAMP

Within 45 calendar days after Notice to Proceed (NTP) and prior to starting on-site construction activities, the Contractor shall submit 25 copies of the Draft RAMP to the CO for review and comment. The RAMP shall be submitted in three-ring binders with tabulation pages for each of the plans and designs listed above. A minimum of 45 calendar days, exclusive of mailing time, will be required for Government review of the Draft RAMP. The complete set of review comments will be forwarded by the CO to the Contractor for preparation of a response to the comments.

#### 1.3.2 Review Conference

The Contractor shall submit to the CO written responses to the Draft RAMP review comments within 10 calendar days following receipt of the comments. A Draft RAMP Review Conference will then be held after receipt of Contractor's written responses. The purpose of the review conference will be to resolve any remaining conflicts with the RAMP document and to obtain agreement on the scope of required revisions and modifications to be incorporated in the Final RAMP. The review conference will be held on site or at the Seattle-District offices, if the CO directs. The CO will notify the Contractor of the date and time of the conference.

### 1.3.3 Final RAMP

The Contractor shall make all revisions required by the CO and resubmit 25 copies of the Final RAMP and final written responses to review comments within 10 calendar days after the review conference for government review and approval. A minimum of 30 calendar days will be required for final review and approval by the CO.

## 1.4 CONFERENCE ATTENDANCE

### 1.4.1 Personnel Attendance

The following personnel shall attend the Draft RAMP Review Conference:

- a. CO
- b. Contractor's Project Manager
- c. Contractor's Site Project Superintendent
- d. Contractor's Quality Control System Manager
- e. Contractor's Safety and Health Manager (Certified Industrial Hygienist)
- f. Representative of any subcontractor with significant involvement in preparation of the RAMP or as required by the CO

### 1.4.2 Conference Minutes

The Contractor shall be responsible for recording the minutes of the review conference and shall include any significant proceedings and decisions. Details on the resolution of all review comments shall be addressed. Within five working days following the conference, the Contractor shall prepare and submit three original typed copies of the minutes to the CO. On approval by the CO, the Contractor shall incorporate the minutes in the final RAMP.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

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## **SECTION 01410**

### **ENVIRONMENTAL PROTECTION**

#### **PART 1 GENERAL**

##### **1.1 GENERAL REQUIREMENTS**

The Contractor shall perform the work minimizing environmental pollution and damage as the result of construction operations. Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of land, water, and air, and includes management of visual aesthetics, emissions, dust, noise, solid waste, as well as other pollutants. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall ensure compliance with this section by subcontractors.

##### **1.1.1 Submittals**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Data

Environmental Protection Plan; GA

The Contractor shall submit an Environmental Protection Plan within 45 calendar days after receipt of the notice to proceed (NTP), as part of the Remedial Action Management Plan (RAMP), Section 01400. Approval of the Contractor’s plan will not relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures. The Environmental Protection Plan shall include, but shall not be limited to, the following:

- a. A list of Federal, State, and local laws, regulations, and permits concerning environmental protection, pollution control, and abatement that are applicable to the Contractor’s proposed operations and the requirements imposed by those laws, regulations, and permits. The Contractor will be provided a list of applicable or relevant appropriate requirements (ARARs) previously compiled for the remediation project.
- b. Methods for protection of features to be preserved within authorized work areas like trees, shrubs, vines, grasses, and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological, and cultural resources, and wetlands.

- c. Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the Environmental Protection Plan.
- d. Location of the solid waste disposal area.
- e. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.
- f. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.
- g. Traffic control plan including measures to reduce erosion and deterioration of temporary roadbeds by construction traffic, especially during wet weather, and to limit and remove the amount of mud transported onto paved public roads by vehicles or runoff.
- h. Methods of protecting surface water and groundwater during construction activities.
- i. Plan showing the proposed activity in each portion of the work area and identifying the areas of limited use or nonuse. Plan shall include measures for marking and maintaining the limits of use areas and restricted wetland areas.
- j. Drawing of borrow area location. Protection measures required at the work site shall apply to the borrow areas including final restoration for subsequent beneficial use of the land.
- k. A recycling and waste prevention plan with a list of measures to reduce consumption of energy and natural resources; for example: the possibility of shredding fallen trees and using them as mulch shall be considered as an alternative to burning or burial.
- l. Training for the Contractor's personnel during the construction period.
- m. Spill prevention, control, and countermeasure plan, including the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, 40 CFR 761.65(c) and/or regulated under State or Local laws and regulations. The plan shall also address containment and cleanup of sheens that may be released to the adjacent water body. This plan supplements the requirements of EM 385-1-1 and shall include as a minimum:
  - 1. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the CO and the local Fire Department in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable

quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.

2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.
3. Training requirements for Contractor's personnel and methods of accomplishing the training.
4. A list of materials and equipment to be immediately available at the Site, tailored to cleanup work of the potential hazard(s) identified.
5. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
6. The methods and procedures to be used for expeditious contaminant cleanup.

#### Preconstruction Survey; GA

Prior to starting any on-site construction activities, the Contractor and the Contracting Officer (CO) shall make a joint condition survey after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs, grassed areas, and wetlands immediately adjacent to work sites and adjacent to the assigned work/staging areas and access routes as applicable. This report will be signed by both the CO and the Contractor upon mutual agreement as to its accuracy and completeness.

#### SD-13 Certificates Filter Fabric Fence; GA

The Contractor shall provide Manufacturer's product data indicating the materials meet the requirements of the Drawings and specifications.

#### Rolled Erosion Control Product; GA

The Contractor shall provide Manufacturer's product data indicating the materials meet the requirements of the Drawings and specifications.

#### Straw Mulch

The Contractor shall provide Manufacturer's certified QA test results or certificates for samples from products a minimum of 14 calendar days prior to delivery to the site.

### 1.1.2 Permits

The Contractor shall obtain all needed permits, certifications, or licenses. Permits for on-site work are not required for this project; however, the Contractor must comply with substantive

portions of the permit. The Government will not obtain any permits for this project; see Contract Clause PERMITS AND RESPONSIBILITIES. The Contractor shall be responsible for implementing the terms and requirements of the appropriate permits as needed and for payment of all fees.

#### 1.1.3 Meetings

The Contractor shall meet with the CO to alter the Environmental Protection Plan as needed for compliance with the requirements of Section 01451 ENVIRONMENTAL PROTECTION.

#### 1.1.4 Notification

The CO will notify the Contractor in writing of any observed noncompliance with the previously mentioned Federal, State, or local laws or regulations, permits, and other elements of the Contractor's Environmental Protection Plan. Contractor shall, after receipt of such notice, inform the CO of proposed corrective action and take such action when approved. If the Contractor fails to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspensions.

#### 1.1.5 Litigation

If work is suspended, delayed, or interrupted due to a court order of competent jurisdiction, the CO will determine whether the order is due in any part to the acts or omissions of the Contractor, or subcontractors at any tier, not required by the terms of the contract. If it is determined that the order is not due to the Contractor's failing, such suspension, delay, or interruption shall be considered as ordered by the CO in the administration of the contract under the contract clause SUSPENSION OF WORK.

#### 1.1.6 Previously Used Equipment

The Contractor shall thoroughly clean all construction equipment previously used at other sites before it is brought into the work areas, ensuring that soil residuals are removed and that egg deposits from plant pests are not present; the Contractor shall consult with the U.S. Department of Agriculture (USDA) jurisdictional office for additional cleaning requirements.

### 1.2 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the Drawings and Specifications. Prior to the beginning of any construction, the Contractor shall identify the land resources to be preserved within the work area. Except in areas indicated on the Drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, wetlands, and land forms without permission. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times



as defined in the following subparagraphs. Stone, earth or other material displaced into uncleared areas shall be removed.

#### 1.2.1 Work Area Limits

Prior to construction, the Contractor shall mark the areas that are not to be disturbed under this contract, including wetlands. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers and monitoring wells and implants not scheduled for abandonment on the Drawings and Specifications shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

#### 1.2.2 Landscape

Trees, shrubs, vines, grasses, land forms, wetlands, and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

#### 1.2.3 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in cases where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the developed areas as approved by the CO.

#### 1.2.4 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

- a. Retardation of runoff and prevention of runoff channelization. Runoff from the construction site or from storms shall be retarded by means of surface roughening, site fencing, and the preservation of a vegetated buffer area around the site, and by any measures required by area-wide plans under the Clean Water Act.
- b. Erosion and sedimentation control devices. The Contractor shall install temporary and permanent erosion and sedimentation control features as indicated on the Drawings. Filter fabric fencing, crossing control matting, quarry spalls stabilization area, and mulches shall be maintained until permanent drainage and erosion control facilities are completed and operative.

### 1.2.5 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the Drawings or as directed by the CO. Temporary movement or relocation of the Contractor facilities shall be made only when approved by the CO. Stockpile areas shall be managed to minimize erosion and to prevent sediment from entering nearby waters. Spoil areas shall be managed and controlled to limit spoil intrusion into areas designated on the Drawings and to prevent erosion of soil or sediment from entering nearby waters. Spoil areas shall be developed in accordance with the grading plan indicated on the Drawings. Temporary excavation and embankments for work areas shall be controlled to protect adjacent areas from despoilment.

### 1.2.6 LNAPL Releases to Soil

During preloading, LNAPL may be released to the ground surface at any of the seeps previously identified, or at other locations on the landfill surface. The Contractor shall inspect the landfill weekly during preloading for the presence of such light non-aqueous phase liquids (LNAPL) releases. If the Contractor detects such a release, the Contractor shall collect the LNAPL and LNAPL-contaminated soil, and dispose of it per Paragraph 1.5 WASTE DISPOSAL.

## 1.3 WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination of the fresh water reserve. Monitoring of water areas affected by construction shall be the Contractor's responsibility. All water areas affected by construction activities shall be monitored by the Contractor. During preloading, LNAPL may be released to surface water at any of the seeps previously identified. The Contractor shall inspect the LNAPL containment boom weekly during preloading for the presence of LNAPL releases. If the Contractor detects such a release, the Contractor shall collect the LNAPL and dispose of it per paragraph 1.5 WASTE DISPOSAL.

### 1.3.1 Washing and Curing Water (Not Used)

### 1.3.2 Diversion Operations

Construction operations for dewatering shall be controlled at all times to limit the impact of water turbidity on the habitat for wildlife and on water quality in Mill Creek and Cathlamet Bay.

### 1.3.3 Stream Crossings (Not Used)

### 1.3.4 Fish and Wildlife

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations. The Oregon Department of Fish and Wildlife (ODFW) has designated Mill Creek as “Essential Indigenous Anadromous Salmonid Habitat” (OAR 141-102) and established a “Preferred Work Period” of July 1 to September 15 for work potentially affecting such habitat. Additionally, the ODFW established “Preferred Work Period” for the Columbia River Estuary (from the mouth of Tongue Point) is from November 1 to February 28.

## 1.4 AIR RESOURCES

Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with the State’s Air Quality rules (OAR 340-020 General Air Pollution Control Regulations, OAR 340-200 General Air Pollution Procedures and Definitions and OAR 202 Ambient Air Quality Standards and Prevention of Significant Degradation Requirements), and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency (40 CFR 50 National Primary and Secondary Air Quality Standards) shall be maintained. Monitoring of air quality shall be the Contractor’s responsibility. All areas affected by the construction activities shall be monitored by the Contractor.

### 1.4.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause Federal and State air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

### 1.4.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

#### 1.4.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

#### 1.4.4 Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environmental damage by noise. The Contractor shall comply with the provisions of the Oregon Noise Control Regulation (Oregon Administrative Rules, OAR 340-035) .

### 1.5 WASTE DISPOSAL

Disposal of wastes shall be as specified in Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS and as specified below.

#### 1.5.1 Solid Wastes

Solid wastes, excluding waste material specified to be disposed of in the on-site landfill in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS, shall be placed in containers that are emptied on a regular schedule. Handling and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste becomes co-mingled with solid waste. The Contractor shall transport solid waste, excluding clearing debris, off Government property and dispose of it in compliance with Federal, State (OAR 340-093 Solid Waste General Provisions), and local requirements for solid waste disposal approved by the CO. The Contractor shall comply with Federal, State, and local laws and regulations pertaining to off-site disposal of solid wastes.

#### 1.5.2 Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the CO. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 6 inches (15 centimeters [cm]) of the top. Wastes shall be disposed of in accordance with Federal, State, and local laws and regulations.

#### 1.5.3 Hazardous Wastes

The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing and shall collect waste in suitable containers observing compatibility LNAPL collected in the LNAPL storage tanks shall be managed as a Toxic Substances Control Act (TSCA)-regulated waste as defined in Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS. The Contractor shall transport hazardous waste off Government property and dispose of it in compliance with

Federal, State (OAR 340-100 to 340-103), and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the CO. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility.

#### 1.5.4 Burning

Burning will not be permitted.

#### 1.6 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

No historical, archaeological, and cultural resources within the Contractor's work area have been identified. If during excavation or other construction activities any previously unidentified or unanticipated resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. The Contractor shall take precautions to preserve all such resources as they existed at the time they were first pointed out. The Contractor shall provide and install protection for these resources and be responsible for their preservation during the life of the contract. Resources covered by this paragraph include but are not limited to any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rocks or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately notify the CO. While waiting for instructions the Contractor shall record, report, and preserve the finds in accordance with the National Historic Preservation Act and 43 Code of Federal Regulations Subtitle A Part 7, Protection of Archaeological Resources.

#### 1.7 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction.

#### 1.8 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work areas.

#### 1.9 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant. These facilities include erosion and sediment control (ESC) facilities such as the filter fabric fences, hay or straw bale barriers, Rolled Erosion Control Products and straw soil covers described in this document. They also include the LNAPL containment boom that is currently in use at the site to prevent material from landfill seeps from entering Mill Creek or Cathlamet Bay.

Maintenance on ESC facilities shall include a minimum of biweekly inspections to ensure proper functioning. Inspections shall also be performed within 48 hours following any 24-hour period with greater than 1.0 inch (2.5 centimeters [cm]) of rainfall to assess

performance. This will require the Contractor to monitor rainfall amounts by checking with the Weather Service or provide and monitor an onsite range gauge. ESC materials shall be reinforced, repaired or replaced as necessary to prevent further erosion.

Maintenance of the LNAPL containment boom during Phase I shall consist of a minimum of biweekly inspections from the shore during low tide, followed by appropriate response actions. Inspections shall also be performed within 48 hours following any 24-hour period with greater than 1.0 inch (2.5 cm) of rainfall. Inspections and maintenance of the boom shall address the following:

- a. Items missing from the boom that need to be replaced
- b. Alignment of boom; ensure that it is floating properly
- c. Assess the need to replace absorbent material

If absorbent material requires replacement, the Contractor shall inform the CO within 24 hours of the determination. The replacement and disposal of exhausted absorbent material is not part of this Contract.

#### 1.10 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental pollution control.

## PART 2 PRODUCTS

### 2.1 FILTER FABRIC FENCE

#### 2.1.1 Geotextile

- a. Manufacturer's fabric specifications must be submitted for approval and must be available on-site.
- b. Geotextile shall be a woven monofilament or non-woven fabric. Slit-film fabric shall not be used.
- c. Apparent opening size ([AOS], American Society for Testing and Materials [ASTM] D-4751) shall be 100 to 140.
- d. Water permissivity (ASTM D-4491): 0.02 sec<sup>-1</sup> minimum
- e. Grab tensile strength (ASTM D-4632): 100 pounds (45 kilograms) minimum
- f. Grab tensile elongation (ASTM D-4632): 30 percent maximum

- g. Ultraviolet resistance (ASTM D-4355): 70 percent minimum

2.1.2 Posts: 2 inch by 4 inch (5 cm by 10 cm) wood or steel fence posts with the minimum length indicated on the Drawings.

## 2.2 STRAW MULCH

Straw mulch shall be air-dried and free of undesirable seed, weeds, and coarse material.

## 2.3 ROLLED EROSION CONTROL PRODUCT (RECP)

The RECP shall consist of machine-fabricated biodegradable mats (either straw or coconut fiber, or combination) covered by a biodegradable netting. Acceptable products include the following, or equivalent:

Bon Terra® EcoNet™ ENCS2  
North American Green 5150 BN

If equivalent product is planned to be used, submit product proposed for approval; and maintain a copy of manufacturer's specifications on-site.

## PART 3 EXECUTION

### 3.1 FILTER FABRIC FENCE

#### 3.1.1 Construction

- a. Perimeter filter fabric fence: Prior to other land-distributing or intrusive activities
- b. Silt fence in trench: 8 inches wide by 12 inches deep (20 cm by 30 cm); backfill trench with compacted native soil (see Drawings)
- c. Fence posts: Maximum separation, 6 feet (2 meters [m])
- d. Posts: Drive 30 inches (76 cm) into ground
- e. Fabric: Stapled to posts per manufacturer's recommendations
- f. Alignment: Follow contours, within a tolerance of 1 vertical foot (0.3 m)
- g. Fence ends: Extend upslope perpendicular to the contour for a distance of at least 6 feet (2 m) to inhibit flow around the end of the fence
- h. Fence sections: Overlap at least 10 feet (3 m)

### 3.1.2 Maintenance

- a. Inspection: A minimum of bi-weekly and within 48 hours after any rain fall event greater than 1.0 inch in a 24-hour period; any damage shall be repaired immediately.
- b. Channalized flow parallel to the fence: If trapped sediment is evident, remove the trapped sediment
- c. Sediment at a depth of 6 inches (15 cm): Remove sediment
- d. Photo-degraded or damaged fabric: Replace
- e. Final site stabilization: Remove fence

## 3.2 STRAW MULCH

### 3.2.1 Application

- a. Unvegetated landfill areas and stockpile areas not protected by other means
- b. Rate: 3 tons/acre (6.6 metric tons/hectare) (3 bales per 1,000 ft<sup>2</sup> [93 m<sup>2</sup>], or 3 inches (7.6 cm) thick)
- c. Prepare soil for mulch by scarifying to a minimum depth of 4 inches (10 cm)
- d. Secure mulch to soil: “Crimp” straw into soil by operating tracked vehicle parallel to slope (up and down slope).

### 3.2.2 Maintenance

- a. Stockpiled straw: 10 percent of covered area
- b. Inspect straw mulch: A minimum of biweekly and following any 24-hour period with greater than 1.0 inch (2.5 cm) of rainfall; inspect within 48 hours of the rainfall event; repair by replacing straw and re-crimping

## 3.3 ROLLED EROSION-CONTROL PRODUCT (RECP)

### 3.3.1 Preload Pile Application

- a. Placement: As soon as practical following completion of pile; prepare smooth surface by operating tracked vehicles on pile
- b. Installation: Manufacturer’s recommendations (overlap a minimum of 6 inches [15 cm])
- c. Top of slope: Place in a trench at least 6 inches wide by 6 inches deep (15 cm by 15 cm), backfilled with native soil or preload material



- d. Staple: Manufacturer's recommendations
- e. Reuse RECP at each preload stockpile
- f. Inspection: A minimum of biweekly and following any 24-hour period with greater than 1.0 inch (2.5 cm) of rainfall; inspect within 48 hours of the rainfall event. Repair and re-staple areas where good contact with ground has been lost; maintain extra RECP (10 percent) on site for repair work

**END OF SECTION**

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## **SECTION 01451**

### **CONTRACTOR QUALITY CONTROL**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM D 3740 (1999b) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1998a) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

##### **1.2 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Data

Contractor Quality Control Plan; GA.

A plan detailing the manner in which quality control of work shall be managed, submitted 45 calendar days after Notice to Proceed as part of the Remedial Action Management Plan (RAMP). This plan shall include, as a minimum, the items described in paragraph 3.2.2 Content of the CQC Plan.

#### **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.1 GENERAL REQUIREMENTS**

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled “Inspection of Construction.” The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on site and off site, and shall be keyed to the proposed construction sequence. The Site project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer (CO) for non-compliance with quality requirements specified in the contract. The Site project superintendent in this context shall be the highest level manager responsible for overall construction activities at the Tongue Point Landfill site (Site), including quality and production. The Site project superintendent or approved designee shall maintain a physical presence at the Site when production work is ongoing, except as otherwise acceptable to the CO, and shall be responsible for all construction and construction related activities at the Site.

### **3.2 QUALITY CONTROL PLAN**

#### **3.2.1 General**

The Contractor shall furnish for review by the Government, not later than 45 calendar days after Notice to Proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled “Inspection of Construction.” The plan shall identify personnel, procedures, control, instructions, test, records, and forms to be used. The Government will consider an interim plan for the first 60 calendar days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

#### **3.2.2 Content of the CQC Plan**

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system as defined in paragraph 3.6 CONTROL for all aspects of the work specified. The staff shall include a CQC System Manager as defined in paragraph 3.4.2 CQC SYSTEM MANAGER. The CQC System Manager shall report to the Project Manager who is ultimately responsible. If the Project Manager and Site Project Superintendent are the same person, the CQC System

Manager shall report to someone higher in the Contractor's organization than the Project Manager.

- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the CO.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities must be validated by the U.S. Army Corps of Engineers (USACE) Material Testing Center (MTC) and approved by the CO before they may be used.
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking material removed from the Site for disposal including chain-of-custody tracking sheets and other documentation required by law.
- h. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- i. Reporting procedures, including proposed reporting formats.
- j. Procedures for measuring quantities of materials imported or removed from the Site including documentation forms and procedures.
- k. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list

will be discussed during the coordination meeting and must be accepted prior to the start of construction as described in paragraph 3.2.3 Acceptance of Plan.

### 3.2.3 Acceptance of Plan

Acceptance of the Contractor's CQC Plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in the CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the CO in writing of any proposed change. Proposed changes are subject to acceptance by the CO.

## 3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the CO or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and off-site work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance (QA). Minutes of the meeting shall be prepared by the Contractor and signed by both the Contractor and the CO. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

## 3.4 QUALITY CONTROL ORGANIZATION

### 3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. The Contractor shall provide a CQC organization which shall be at the Site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the CO. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, shop drawings submittals, schedules and all

other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents, Contractor prepared plans, and records at the Site at all times, except as otherwise acceptable to the CO.

### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer or a graduate of construction management, with a minimum of 5 years of construction experience on construction similar to this contract or a construction person with a minimum of 10 years in related work. This CQC System Manager shall be on the Site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

### 3.4.3 Additional Requirement

In addition to the above experience education requirements, the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors." This course is periodically offered at Associated General Contractors (AGC) offices throughout the state of Washington and Oregon.

### 3.4.4 Organizational Changes

The Contractor shall maintain the CQC staff at sufficient strength to perform required CQC activities at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the CO for acceptance.

## 3.5 SUBMITTALS AND DELIVERABLES

Submittals shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC System Manager shall be responsible for certifying that all submittals are in compliance with the contract requirements. All Contractor forms for submitting test results are subject to CO approval.

## 3.6 CONTROL

CQC is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work Site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the Drawings.
- c. A check to ensure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination and inventory of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the CO.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.



### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity hazard analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-Up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

### 3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable CQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

### 3.7 TESTS

#### 3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Contractor shall submit all materials test reports on forms standard to industry standards such as ACI, ASTM and American Association of State Highway and Transportation Officials (AASHTO) or with laboratory accreditation forms such as American Association of Laboratory Accreditation (AALA), National Institute of Standards and Technology (NIST), or National Voluntary Laboratory Accreditation Program (NVLAP). Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a USACE validated testing laboratory or establish a testing laboratory at the project Site which can be validated by the USACE in advance of any and all required testing; and in addition, submit proof of validation for approval. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared. Samples sent off site for laboratory testing shall have recorded sampling date, shipment date, and actual test completion date.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be provided on the CQC report. If approved by the CO, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility shall be provided directly to the CO. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

#### 3.7.2 Testing Laboratories

- a. Validation

The testing laboratory must be validated by the MTC for all tests required by the contract prior to the performance of any such testing. The validation of a laboratory is Site specific and cannot be

transferred or carried over to a facility at a different location. Any and all costs associated with this Government laboratory validation shall be borne by the laboratory and/or the Contractor. Validation of a laboratory is not granted for the entire laboratory activity, but only for the specific procedures requested by the inspected laboratory. The inspected laboratory has full choice of the procedures to be inspected except that the QA portion of American Society for Testing and Materials (ASTM) E 329 is mandatory to be inspected.

(1) Validation Procedures

Validation of a laboratory may consist of either an inspection or audit as defined herein. Validation of all material testing laboratories shall be performed by the MTC. Validation may be accomplished by one of the following processes.

(i) Inspection. Inspection shall be performed by the MTC in accordance with ASTM E 329 and ASTM D 3740.

(ii) Audit. A laboratory may be validated by auditing if it has been accredited by the Concrete and Cement Reference Laboratory (CCRL) or AASHTO Materials Reference Laboratory (AMRL) within the past two years in accordance with ASTM E 329. Audit shall be performed by the MTC. Inspection by MTC may be required after auditing if one or more of the critical testing procedures required in the project specification were not included in the CCRL or AMRL inspection report or if there is any concern that the laboratory may not be able to provide required services.

b. Standards of Acceptability

(1) Aggregate, Concrete, Bituminous Materials, Soil, and Rock

Laboratories for testing aggregate, concrete, bituminous materials, soil, and rock shall be validated for compliance with ASTM E 329, Engineer Manual (EM) 1110-2-1906, or project specifications, as applicable.

(2) Water, Sediment, and Other Samples

Laboratories engaged in analysis of water, sediment, and other samples for chemical analysis shall be inspected to assure that they have the capability to perform analyses and quality control procedures described in references in Appendix A of 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants, of the Clean Water Act, as appropriate. The use of analytical methods for procedures not addressed in these references will be evaluated by the Chemical Quality Assurance Branch (CQAB) laboratory in Omaha, Nebraska, for conformance with project or program requirements.

(3) Steel and Other Construction Materials

Laboratories testing steel and other construction materials shall be validated for capabilities to perform tests required by project requirements and for compliance with ASTM E 329.

c. Validation Schedule

- (1) For all contracted laboratories and project QA laboratories testing aggregate, concrete, soils, rock, and other construction materials, an initial validation shall be performed prior to performance of testing.
- (2) Laboratories performing water quality, wastewater, sludge, and sediment testing shall be approved at an interval not to exceed 18 months.
- (3) All laboratories shall be revalidated at any time at the discretion of the CO when conditions are judged to differ substantially from the conditions when last validated.

d. Validation Process

If a validated laboratory is unavailable or the Contractor selects to use a laboratory which has not been previously validated, Contractor shall coordinate with USACE MTC to obtain validation and pay all associated costs. Point of contact at MTC is Daniel Leavell, telephone (601) 634-2496, fax (601) 634-4656, email [daniel.a.leavell@erdc.usace.army.mil](mailto:daniel.a.leavell@erdc.usace.army.mil), at the following address:

U.S. Army Corps of Engineers  
Materials Testing Center  
Waterways Experiment Station  
3909 Hall Ferry Road  
Vicksburg, MS 39180-6199

Procedure for USACE validation, including qualifications and inspection/audit request forms are available at the MTC web site:

<http://www.wes.army.mil/SL/MTC/mtc.htm>

The Contractor shall coordinate directly with the MTC to obtain validation. The Contractor is cautioned the validation process is complicated and lengthy, may require an on-site inspection by MTC staff, correction of identified deficiencies, and the submittal and approval of significant documentation. Estimate a minimum of 60 calendar days to schedule an inspection/submittal and receive a validation. Schedule of costs:

Full Onsite Inspection	0 - 10 procedures	\$3000 + travel expenses
	11 - 45 procedures	\$4000 + travel expenses
	46 + procedures	\$5000 + travel expenses
Full Desk Audit (AASHTO inspected)		\$2500

Abbreviated Audit by AASHTO Accreditation \$1250

Additional Procedures after Validation \$250 each to a maximum of two

Travel time and associated costs will be determined from Vicksburg MS. The Contractor will be invoiced for actual travel costs and shall submit payment direct to the MTC made payable to the ERDC Finance and Accounting Officer prior to the scheduling of the inspection and/or audit. The Contractor shall copy the Contracting Officer of all correspondence and submittals to the MTC for purposes of laboratory validation.

### 3.7.3 On-Site Laboratory (Not Used)

### 3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials will be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the USACE Division Laboratory, free on board (f.o.b.), at the following address:

U.S. Army Corps of Engineers  
Materials Testing Center  
Waterways Experiment Station  
3909 Hall Ferry Road  
Vicksburg, MS 39180-6199  
Phone: (610) 634-2496 or (601) 634-3261

ATTN: Project Phase I Tongue Point Landfill Remedial Action, Contract Number  
PNF10OR048303

Coordination for each specific test, exact delivery location and dates will be made through the Seattle District USACE Office. If samples are scheduled to arrive at the laboratory on a weekend (after 1700 Friday through Sunday) notify the laboratory at least 24 hours in advance at (601) 634-3974 to arrange for delivery.

## 3.8 COMPLETION INSPECTION

### 3.8.1 Punch-Out Inspection

Near the completion of all work or any increment thereof established by a completion time stated in the Special Clause entitled “Commencement, Prosecution, and Completion of Work,” or stated elsewhere in the specifications, the CQC System Manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph 3.9 DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection

to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

### 3.8.2 Pre-Final Inspection

The CO will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The CQC System Manager shall ensure that all items on this list have been corrected before notifying the CO so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

### 3.8.3 Final Acceptance Inspection

The CQC Inspection personnel, plus the Site Project Superintendent or other primary management person, and the CO shall be in attendance at this inspection. Additional personnel including, but not limited to, those from other government agencies, the property owner (State of Oregon) and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the CO based upon results of the Pre-Final inspection. Notice shall be given to the CO at least 14 calendar days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CO to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction."

## 3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis System (NAS) is used, identify each phase of work performed each day by NAS activity number.

- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the Site with statement as to acceptability, storage, and reference to specifications and Drawings requirements.
- f. Submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in Drawings and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract unless a deficiency is noted. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 calendar days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

### 3.10 SAMPLE FORMS

Sample forms are attached at the end of this specification section (Attachments 01451-A and 01451-B).

### 3.11 NOTIFICATION OF NONCOMPLIANCE

The CO will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice or at the time the Contractor becomes aware of such deficiency. Failure of the CO to notify the Contractor of any deficiency does not relieve the Contractor of the Contractor's responsibility to correct the deficiency(ies). Such notice, when delivered to the Contractor at the work Site, shall be deemed

sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.



Attachment 01451-A  
SAMPLE OF DAILY CONSTRUCTION QUALITY CONTROL REPORT

Contract Number: \_\_\_\_\_ Date: \_\_\_\_\_ Rpt. No. \_\_\_\_\_

Contract Title: \_\_\_\_\_ Location: \_\_\_\_\_

Weather: Clear\_\_ P. Cloudy\_\_ Cloudy\_\_ Rainfall\_\_ (\_\_\_% of workday)

Temperature during workday: High \_\_\_\_ degrees F. Low \_\_\_\_ degrees F.

1. WORK PERFORMED BY CONTRACTOR/SUBCONTRACTOR(S):

<u>Contractor Name</u>	<u>No. of Workers</u>	<u>Crafts/Hours</u>	<u>Work performed</u>
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[illegible]

## 2. EQUIPMENT DATA:

<u>Type, Size, Etc.</u>	<u>Owned/Rented</u>	<u>Hours Used</u>	<u>Hours Standby</u>
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3. QUALITY CONTROL INSPECTIONS AND RESULTS: (Include a description of preparatory, initial, and/or follow up inspections or meetings; check of subcontractors work and materials delivered to the Site compared to submittals and/or specifications; inventories (attach to report); comments on the proper storage of materials; include comments on corrective actions to be taken):

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4. QUALITY CONTROL TESTING AND RESULTS (comment on tests and attach test reports):

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5. DAILY SAFETY INSPECTIONS (Include comments on new hazards to be added to the Hazard Analysis and corrective action of any safety issues):

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6. REMARKS (Include conversations with or instructions from the Government representatives; delays of any kind that are impacting the job; conflicts in the contract documents; comments on change orders; environmental considerations; etc.):

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CONTRACTOR'S VERIFICATION: The above report is complete and correct. All material, equipment used, and work performed during this reporting period are in compliance with the contract documents except as noted above.

---

CONTRACTOR QC REPRESENTATIVE

Attachment 01451-B  
SAMPLE OF TEST REPORT

STRUCTURE OR BUILDING \_\_\_\_\_

CONTRACT NO. \_\_\_\_\_

DESCRIPTION OF ITEM, SYSTEM, OR PART OF SYSTEM TESTED:

---

---

DESCRIPTION OF TEST: \_\_\_\_\_

---

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR THE  
CONTRACTOR:

NAME \_\_\_\_\_

TITLE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED ITEM, SYSTEM, OR PART OF SYSTEM  
HAS BEEN TESTED AS INDICATED ABOVE AND FOUND TO BE ENTIRELY  
SATISFACTORY AS REQUIRED IN THE CONTRACT SPECIFICATIONS.

SIGNATURE OF CONTRACTOR  
QUALITY CONTROL INSPECTOR \_\_\_\_\_

DATE \_\_\_\_\_

REMARKS

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**END OF SECTION**

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## **SECTION 01500**

### **TEMPORARY CONSTRUCTION FACILITIES**

#### **PART 1 GENERAL**

##### **1.1 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Data

Site Plan; GA

The Contractor shall submit a Site Plan within 45 calendar days after the notice to proceed (NTP), as part of the Remedial Action Management Plan (RAMP), Section 01400. The Site Plan shall indicate the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area details of the fence installation, and employee parking areas. Any areas that may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

SD-18 Records

Identification of Employees, FIO

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer (CO). Prescribed identification shall immediately be delivered to the CO for cancellation upon release of any employee. The Contractor and subcontractor personnel shall wear markings on hard hats clearly identifying the company for whom the employee works.

##### **1.2 AVAILABILITY AND USE OF UTILITY SERVICES**

###### **1.2.1 Temporary Water and Electricity**

The Contractor shall provide temporary water and electricity required for construction. Materials may be new or used and shall be adequate for the required usage, shall not create unsafe conditions, and shall not violate applicable codes and standards.

### 1.2.2 Sanitation

The Contractor shall provide and maintain within the construction area minimum field-type sanitary facilities approved by the CO requirements and regulations of the State Health Department, County Sanitarian, or other authorities having jurisdiction. Sanitary facilities shall be equipped with a hand-washing station. Government toilet facilities will not be available to the Contractor's personnel.

### 1.2.3 Telephone

The Contractor shall make arrangements and pay all costs for telephone facilities required.

### 1.2.4 Protection

Contractor shall locate and mark existing utilities and protect them from damage. Damaged utilities shall be repaired at Contractor's expense.

## 1.3 TEMPORARY ELECTRIC WIRING

### 1.3.1 Temporary Power and Lighting

The Contractor shall provide construction power facilities in accordance with the safety requirements of the National Electric Code NFPA No. 70 and the SAFETY AND HEALTH REQUIREMENTS MANUAL EM 385-1-1. The Contractor, or its delegated subcontractor, shall enforce the safety requirements of electrical extensions for the work of subcontractors. Work shall be accomplished by skilled electrical tradesmen.

### 1.3.2 Construction Equipment

In addition to the requirements of SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1, temporary wiring conductors installed for operation of construction tools and equipment shall be either Type TW or THW contained in metal raceways, or shall be hard usage or extra hard usage multiconductor cord. Temporary wiring shall be secured above the ground or floor in a workmanlike manner and shall not present an obstacle to persons or equipment. Open wiring may only be used outside of buildings, and then only in accordance with the provisions of the National Electric Code.

### 1.3.3 Submittals

Submit detailed drawings of temporary power connections. Drawings shall include, but not be limited to, main disconnect, grounding, service drops, service entrance conductors, feeders, GFCI'S, and all site trailer connections.

## 1.4 FIRE PROTECTION

During the construction period, the Contractor shall provide fire extinguishers in accordance with the safety requirements of the SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-1-1. The Contractor shall remove the fire extinguishers at the completion of construction.

## 1.5 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

### 1.5.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 3 feet by 4 feet (91 centimeters [cm] by 122 cm) in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the CO. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the CO. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by the Contractor from the Site and shall remain the property of the Contractor.

### 1.5.2 Project and Safety Signs

Contractor shall furnish and install one project identification sign and one safety performance sign in accordance with conditions hereinafter specified and layout shown on drawings attached at end of this section. On safety performance sign all lettering shall be painted black on white background using exterior-type paint. Signs shall be maintained in excellent condition throughout life of job. Project sign shall be located as directed. The project and safety signs shall be erected within 15 calendar days after receipt of the Notice to Proceed (NTP). The data required by the safety sign shall be corrected daily, with light colored metallic or non-metallic numerals. Upon completion of project, signs shall be removed and shall remain the property of Contractor.

## 1.6 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporarily relocate roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the CO. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the state and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the Site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

### 1.6.1 Haul Roads

The Contractor shall construct access and haul roads necessary for proper prosecution of the work under this contract in accordance with Section 02241 BASE COURSE and Section 02373 SEPARATION/FILTRATION GEOTEXTILE. Temporary access roads over the preload stockpile area and landfill in general shall be constructed by the Contractor, as necessary, to protect underlying materials of construction, utilities, pipes, etc., and to avoid undo contact with landfill debris. The temporary access roads shall be a minimum of 12 inches thick. Haul roads over the prepared preload areas shall be constructed to ensure that the 4-inch sand/gravel layer and separation geotextile remain intact during the preload stockpile placement operations. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of additional construction and hauling roads not shown on the Drawings necessary for work under this contract shall be subject to approval by the CO and at the Contractor's own expense. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the CO shall be removed.

### 1.6.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible, and with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

### 1.6.3 Gates

The Contractor shall remove the existing gate at the landfill entrance as shown in the Drawing and install a 24- foot-wide, double-leaf gate of the type and quality equal to the existing gate.

## 1.7 CONTRACTOR'S TEMPORARY FACILITIES

### 1.7.1 Staging Area

Contractor will be provided adequate open staging area as directed by the Contracting Officer.

Contractor shall be responsible for keeping staging area, and office area clean and free of weeds and uncontrolled vegetation growth. Weeds shall be removed by pulling or cutting to within 25 mm (1-inch) of ground level. Lawn areas shall be mown to keep growth to less



than 51 mm (2-inches). All loose debris and material subject to being moved by prevailing winds in the area shall be picked up or secured at all times.

If the area is not maintained in a safe and clean condition as defined above the Contracting Officer may have the area cleaned by others with the costs being deducted from the contractor's payment.

#### 1.7.1.1 Employee Parking

The Contractor employees shall park privately owned vehicles in an area approved by the CO. This area shall be within reasonable walking distance of the construction site. The Contractor employee parking shall not interfere with existing and established parking requirements of the facilities.

#### 1.7.1.2 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated Site. Government office and warehouse facilities will not be available to the Contractor's personnel.

#### 1.7.1.3 Storage Area

The Contractor shall construct a temporary 6-foot-high chain link fence around trailers and materials located in the Contractor's storage area located outside of the secured landfill area. The fence shall include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the CO away from the vicinity of the construction Site but within the adjacent areas. Trailers, equipment, or materials shall not be open to public view with the exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. Mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area at the end of each work day.

##### 1.7.1.3.1 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair.

##### 1.7.1.3.2 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion.

### 1.7.2 Supplemental Storage Area

Upon the Contractor's request, the CO will designate another or supplemental area for Contractor's use and storage of trailers, equipment, and materials. This area may not be in close proximity of the construction site but shall be within the adjacent areas. Fencing of materials or equipment will not be required at this Site; however, the Contractor shall be responsible for cleanliness and orderliness of the area used and for the security of any material or equipment stored in this area. Utilities will not be provided to this area by the Government.

### 1.7.3 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment; in addition, the Contractor shall notify the appropriate law enforcement agency and request periodic security checks of the temporary project field office.

## 1.8 GOVERNMENT FIELD OFFICE

### 1.8.1 Resident Engineer's Office

The Contractor shall provide the CO with an office, approximately 200 square feet (19 square meters) in floor area, located where directed and providing space heat, air conditioning, electric light and power, and toilet facilities consisting of one lavatory, and three telephone hookups (one for computer and one for fax transmission). The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds. The Contractor shall furnish a computer, fax machine, and copy machine and sufficient electrical outlets for this equipment. A mail slot in the door or a lockable mail box mounted on the surface of the door shall be provided. Office equipment including desks, chairs, file cabinets, storage shelves, computers, fax, and a copy machine shall be provided. At completion of the project, the office shall remain the property of the Contractor and shall be removed from the Site. Utilities shall be connected and disconnected in accordance with local codes and to the satisfaction of the CO.

### 1.8.2 Trailer-Type Mobile Office and Sanitation Facilities

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the CO and providing as a minimum the facilities specified above. The trailer shall be securely anchored to the ground at all four corners to guard against movement during high winds. The sanitation facilities meeting State and local codes and regulations shall be provided and maintained for all onsite personnel. Sanitation facilities shall be removed at the completion of construction.

## 1.9 HOUSEKEEPING AND CLEANUP

Pursuant to the requirements of Clause CLEANING UP and Clause ACCIDENT PREVENTION, of the CONTRACT CLAUSES, the Contractor shall assign sufficient personnel to ensure compliance. The Contractor shall submit a detailed written plan for implementation of this requirement. The plan will be presented as part of the preconstruction safety plan and will provide for keeping the total construction site, structures, and accessways free of debris and obstructions at all times. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored. Work will not be allowed in those areas that, in the opinion of the Contracting Officer, have unsatisfactory cleanup and housekeeping at the end of the preceding day's normal work shift. At least once each day all areas shall be checked by the Quality Control person of the Contractor and the findings recorded on the Quality Control Daily Report. In addition, the Quality Control person shall take immediate action to ensure compliance with this requirement. Housekeeping and cleanup shall be assigned by the Contractor to specific personnel. The name(s) of the personnel shall be available at the project site.

## 1.10 UTILITIES NOT SHOWN

The Contractor can expect to encounter, within the construction limits of the entire project, utilities not shown on the drawings and not visible as to the date of this contract. If such utilities will interfere with construction operations, he shall immediately notify the Contracting Officer verbally and then in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are removed or relocated as directed, the Contractor shall be entitled to equitable adjustment for any additional work or delay. The types of utilities the Contractor may encounter include waterlines, sewerlines (storm and sanitary), buried fuel tanks, septic tanks, other buried tanks, communication lines, and powerlines. These utilities may be active or abandoned utilities.

## 1.11 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, sanitation facilities and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

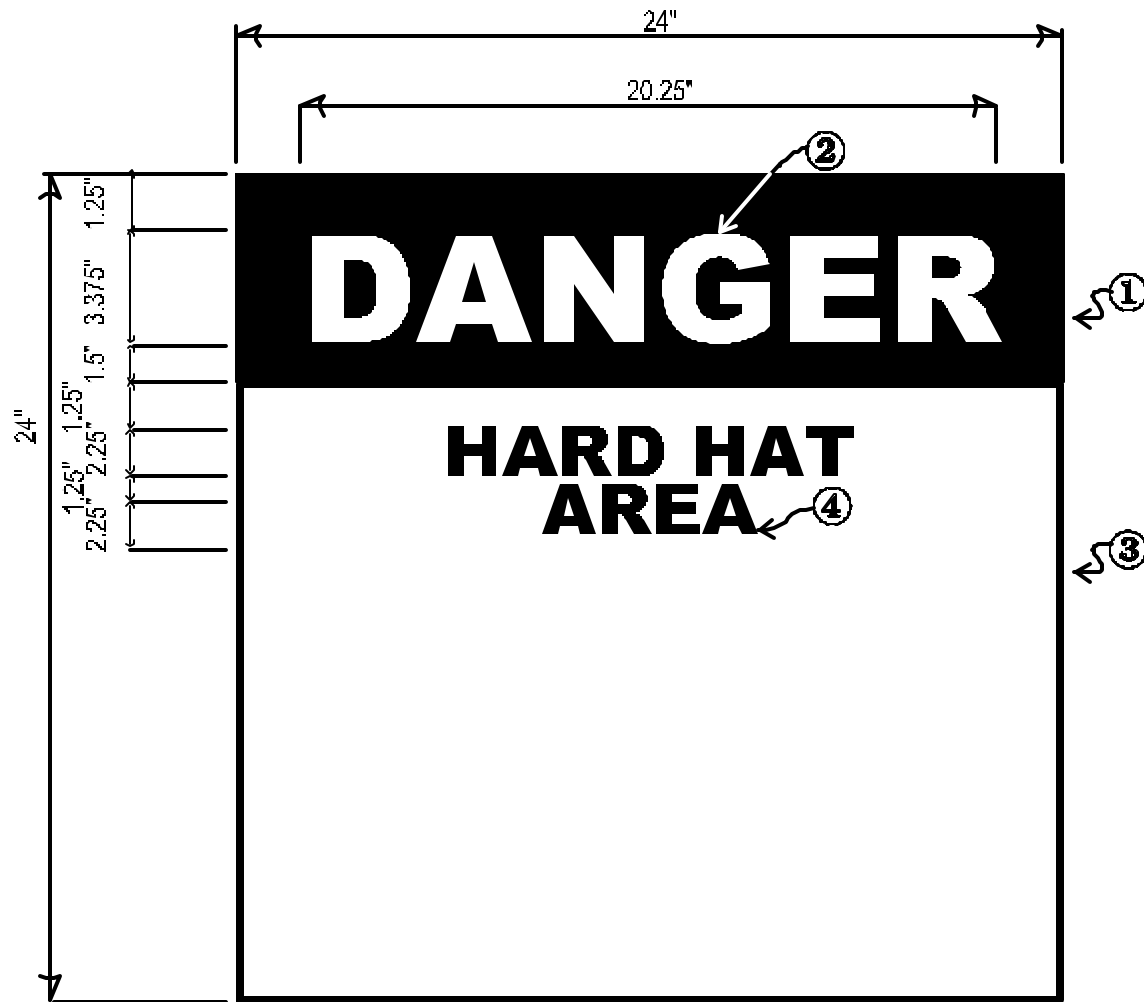
#### 1.12 HARD HAT SIGNS

The Contractor shall provide 610 mm by 610 mm (24 by 24 inch) square Hard Hat Area signs at each entry to the project or work area as directed by the Contracting Officer. A minimum of two signs will be required. Signs shall be in accordance with the sketch at the end of this section.


#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



- SIGN SHALL BE FABRICATED FROM .125 THICK 6061-T6 ALUMINUM PANEL
  - COLOR
    1. SAFETY RED (SR)
    2. WHITE
    3. WHITE
    4. BLACK
  - LETTERING SHALL BE HELVETICA BOLD TYPOGRAPHY.
  - LETTERS AND BACKGROUND SHALL BE REFLECTIVE SHEETING MATERIAL.
  - SIGNS SHALL BE POSTED AT 6' -6" (BOTTOM SIGN TO GRADE) OR AS DIRECTED BY THE CONTRACTING OFFICER.
- LETTERING TO BE CENTERED ON PANEL.

<p>1</p> <p>4 1/2"</p> <p>2"</p> <p>5 1/4"</p> <p>2</p>	<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 5px;"> <span>3"</span> <span>3"</span> <span>3'-6"</span> <span>3"</span> </div> <div style="display: flex; justify-content: space-between; align-items: flex-start; padding: 10px;"> <div style="width: 25%;"> <p>Design and Construction Supervised By:</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 5px 0;">  <p>US Army Corps of Engineers Seattle District</p> </div> <p>2</p> </div> <div style="width: 75%;"> <p>Project Name 3</p> <p>Location 4</p> <p>Architect:</p> <p>Contractor: Smith Associates, Inc. Seattle, Washington</p> <p>6</p> </div> </div> <div style="display: flex; justify-content: space-between; border-top: 1px solid black; padding-top: 5px;"> <span>2'-0"</span> <span>3"</span> <span>1'-9"</span> <span>1"</span> <span>1'-9"</span> <span>2"</span> </div> <p style="text-align: center;">6'-0"</p>	<p>6"</p> <p>4 1/2"</p> <p>4 1/2"</p> <p>6"</p> <p>2 1/4"</p> <p>9 1/2"</p> <p>7/8"</p> <p>7/8"</p> <p>7/8"</p> <p>7/8"</p> <p>7 3/4"</p>
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**NOTES**

1. ONE-TO TWO-LINE DESCRIPTION OF CORPS RELATIONSHIP TO PROJECT.  
COLOR: BLACK  
TYPEFACE: 1.25" HELVETICA REGULAR  
MAX. LENGTH: 19"
2. CORPS COMMUNICATION MARK (2' X 2') WITH CASTLE AND DISTRICT NAME WILL BE GOVERNMENT FURNISHED. MOUNT AS SHOWN. DRILL 5/16" HOLES AND SECURE WITH 1/4" X 1 1/2" NC ALUMINUM BOLTS.
3. ONE-TO THREE-LINE PROJECT TITLE LEGEND DESCRIBES THE WORK BEING DONE UNDER THIS CONTRACT.  
COLOR: BLACK  
TYPEFACE: 3" HELVETICA BOLD  
MAX. LENGTH: 42"
4. ONE-TO TWO-LINE IDENTIFICATION OF PROJECT OR FACILITY  
COLOR: BLACK  
TYPEFACE: 1.5" HELVETICA REGULAR  
MAX. LENGTH: 42"
5. CROSS-ALIGN THE FIRST LINE OF PROJECT OR FACILITY WITH FIRST LINE OF THE CORPS SIGNATURE (US ARMY CORPS) AS SHOWN.

SCALE: 3/4"=1'-0"

6. ONE-TO FIVE-LINE IDENTIFICATION OF PRIME CONTRACTORS INCLUDING: TYPE (ARCH., GENERAL CONTRACTOR, ETC.) CORPORATE OR FIRM NAME, CITY, STATE.  
COLOR: BLACK  
TYPEFACE: 1.25" HELVETICA REGULAR  
MAX. LENGTH: 21"
7. ALL TYPOGRAPHY IS FLUSH LEFT AND RAG RIGHT, UPPER AND LOWER CASE WITH INITIAL CAPITALS ONLY AS SHOWN.

U.S. ARMY CORPS OF ENGINEERS  
SEATTLE DISTRICT

CIVIL WORKS

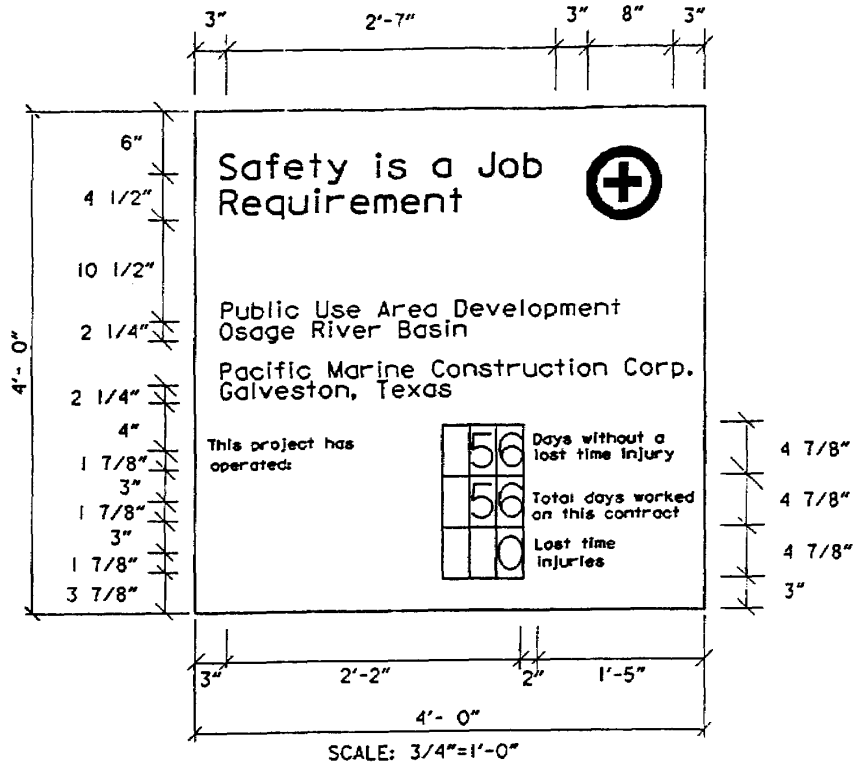
PROJECT IDENTIFICATION SIGN

DRAWN BY: R.L.L.  
CHECKED BY: R.L.M.

SCALE: AS SHOWN

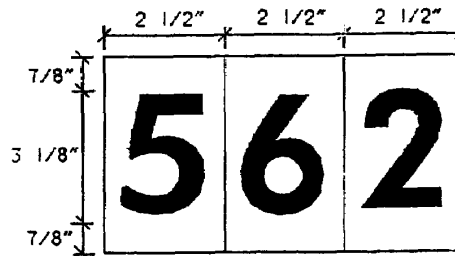
REVISED 7 APRIL 1988

SHEET 1 OF 3



#### NOTES

1. STANDARD TWO-LINE TITLE "SAFETY IS A JOB REQUIREMENT", WITH 8" O.D. SAFETY GREEN FIRST AID LOGO.  
COLOR: TO MATCH PMS 347.  
TYPEFACE: 3" HELVETICA BOLD  
COLOR: BLACK
2. ONE-TO TWO-LINE PROJECT TITLE LEGEND DESCRIBES THE WORK BEING DONE UNDER THIS CONTRACT AND NAME OF HOST PROJECT.  
COLOR: BLACK  
TYPEFACE: 1.5" HELVETICA REGULAR  
MAX. LINE LENGTH: 42"
3. ONE-TO TWO-LINE IDENTIFICATION: NAME OF PRIME CONTRACTOR AND CITY, STATE ADDRESS.  
COLOR: BLACK  
TYPEFACE: 1.5" HELVETICA REGULAR  
MAX. LINE LENGTH: 42"
4. STANDARD SAFETY RECORD CAPTIONS SHOWN.  
COLOR: BLACK  
TYPEFACE: 1.25" HELVETICA REGULAR
5. REPLACEABLE NUMBERS ARE TO BE MOUNTED ON WHITE .060 ALUMINUM PLATES AND SCREW-MOUNTED TO BACKGROUND.  
COLOR: BLACK  
TYPEFACE: 3" HELVETICA REGULAR  
PLATE SIZE: 2.5" X 5"
6. ALL TYPOGRAPHY IS FLUSH LEFT AND RAG RIGHT, UPPER AND LOWER CASE WITH INITIAL CAPITALS ONLY AS SHOWN.



NO SCALE

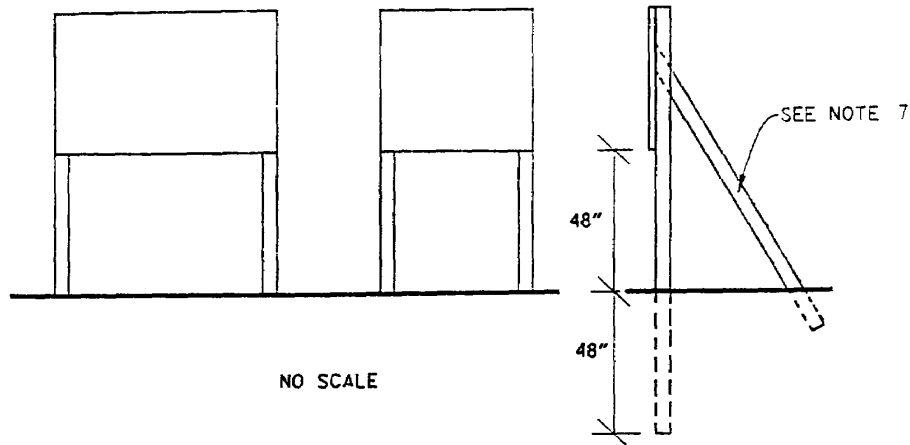
U.S. ARMY CORPS OF ENGINEERS  
SEATTLE DISTRICT

## CIVIL WORKS SAFETY PERFORMANCE SIGN

DRAWN BY: R.L.L.  
CHECKED BY: R.L.M.  
REVISED 7 APRIL 1988

SCALE: AS SHOWN

SHEET 2 OF 3



NO SCALE

1. THE SIGN PANELS ARE TO BE FABRICATED FROM 3/4" HIGH - DENSITY OVERLAY PLYWOOD.
2. SIGN GRAPHICS TO BE PREPARED ON A WHITE NON-REFLECTIVE VINYL FILM WITH POSITIONABLE ADHESIVE BACKING.
3. ALL GRAPHICS ON THE PROJECT SIGN ARE TO BE DIE-CUT OR COMPUTER-CUT NON-REFLECTIVE VINYL, PRE-SPACED LEGENDS PREPARED IN THE SIZES AND TYPEFACES SPECIFIED AND APPLIED TO THE BACKGROUND PANEL FOLLOWING THE GRAPHIC FORMATS SHOWN.
4. DRILL AND INSERT SIX .375" T-NUTS FROM THE FRONT FACE OF THE HDO SIGN PANEL. FLANGE OF T-NUT TO BE FLUSH WITH SIGN FACE.
5. APPLY GRAPHIC PANEL TO PREPARED HDO PLYWOOD PANEL FOLLOWING MANUFACTURERS' INSTRUCTIONS.
6. SIGN UPRIGHTS TO BE STRUCTURAL GRADE 4" X 4" TREATED DOUGLAS FIR OR SOUTHERN YELLOW PINE, NO. 1 OR BETTER. POST TO BE 12' LONG. DRILL SIX .375" MOUNTING HOLES IN UPRIGHTS TO ALIGN WITH T-NUTS IN SIGN PANEL. COUNTERSINK (1/2") BACK OF HOLE TO ACCEPT SOCKET HEAD CAP SCREW (4" X .375").
7. ASSEMBLE SIGN PANEL AND UPRIGHTS. IMBED ASSEMBLED SIGN PANEL AND UPRIGHTS IN 4' HOLE. LOCAL SOIL CONDITIONS AND/OR WIND LOADING MAY REQUIRE BOLTING ADDITIONAL 2" X 4" STRUTS ON INSIDE FACE OF UPRIGHTS TO REINFORCE INSTALLATION AS SHOWN.

U.S. ARMY CORPS OF ENGINEERS  
SEATTLE DISTRICT

# CIVIL WORKS SIGN FABRICATION AND MOUNTING DETAILS

DRAWN BY: R.L.L.  
CHECKED BY: R.L.M.

SCALE: AS SHOWN

REVISED 7 APRIL 1988

SHEET 3 OF 3



## **SECTION 01560**

### **CARE AND DIVERSION OF WATER**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

This section describes the care and/or diking, disposal, and/or diversion of any water that might be required for performance of contract work. The work includes care and any necessary diversion of water in the vicinity of the utility and collection trenches and stormwater runoff from the landfill site.

##### **1.2 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-01 Data

Care and Diversion of Water Work Plan; GA.

Contractor shall submit a work plan for care and diversion of water as part of the Remedial Action Management Plan (RAMP, Section 01400), within 45 calendar days after notice to proceed.

Water quality protection plans must comply with Oregon Department of Environmental Quality (DEQ) requirements, and water quality requirements, as indicated in Section 01410 ENVIRONMENTAL PROTECTION.

SD-04 Drawings

Designs; FIO.

Contractor shall submit design plan for care and temporary diversion of water from work areas as required to complete the contract work, if requested by the CO.

##### **1.3 TIDAL CONDITIONS (NOT USED)**

##### **1.4 FLOOD SEASON (NOT USED)**

#### **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.1 DEWATERING**

#### **3.1.1 General**

Prior to start of construction, the overall plan for care and any necessary diversion of water shall be submitted to the Contracting Officer (CO) for review and approval. Unless otherwise specified, all temporary facilities, equipment, and structures for care and diversion of water shall become the property of the Contractor and shall be removed upon completion of the work, except the permanent drainage features of the project. This does not include Government-supplied materials.

#### **3.1.2 Fish Passage (Not Used)**

#### **3.1.3 Major Drainage Structures (Not Used)**

#### **3.1.4 Minor Drainage Structures and Facilities (Not Used)**

#### **3.1.5 Intertidal Construction Dewatering (Not Used)**

### **3.2 SURFACE CONSTRUCTION DEWATERING**

If surface construction dewatering is required, all necessary temporary facilities shall be furnished, installed, constructed, operated, and maintained for controlling and collecting all water from groundwater, rainfall, and water reaching the work areas as necessary. This water shall be pumped to settling tanks located within the upland construction area and managed as specified in paragraph 3.3 SETTLING AND DISCHARGE OF ACCUMULATED WATER. The required number and size of settling tanks shall be determined by the Contractor, based on the requirement to manage water generated by a 6-month/24-hour storm event. Optional water handling methods may be proposed in the Contractor's Care and Diversion of Water Work Plan; however, discharge of water to the landfill or wetland areas will not be permitted. All surface water runoff from areas adjacent to the work areas will be diverted away from the construction area. Work areas shall be kept free of running or standing water as necessary to permit completion of contract.

### **3.3 SETTLING AND DISCHARGE OF ACCUMULATED WATER**

Water shall be released to Mill Creek only when discharge of such water will not cause an increase in turbidity in Mill Creek greater than 10 percent; comply with Oregon Water Quality Standards, OAR 340-041-0205.

### 3.4 QUALITY CONTROL

Quality control shall be established and maintained for the care and diversion of water, which shall include, but not be limited to:

- a. Any necessary diversions and other structures are constructed in accordance with the approved design
- b. Regular maintenance is instituted and carried out as long as water control is required
- c. Water passages, structures, and sumps are kept clear of dirt, rocks, wood, trash, or other debris as necessary
- d. The work areas are kept free of running or standing water as necessary
- e. Water used in processing or cleanup is controlled and properly disposed of
- f. Compliance with the requirements of Section 01410 ENVIRONMENTAL PROTECTION
- g. All analytical and sampling quality control processes will be documented in the Contractor's RAMP and shall be followed
- h. Required removal and cleanup of facilities for care and diversion of water are done in a satisfactory manner

**END OF SECTION**

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## **SECTION 01720**

### **FIELD ENGINEERING**

#### **PART 1 GENERAL**

##### **1.1 SUMMARY**

1.1.1 The Contractor shall provide all materials, items, operations, or methods specified, listed, or scheduled on the contract Drawings or in the Specifications, including all materials, labor, equipment, and incidentals necessary and required to conduct proper surveys required to stake and layout the work.

1.1.2 The Contractor shall perform surveys for layout of the work, to obtain data for progress quantity charts, and to verify the quantities of final “as built” construction for payment of completed work.

1.1.3 Software used for data transfer to USACE shall be provided to the CO and written approval received from the CO prior to the start of the site work. If the software provided is not suitable for USACE use, in the opinion of the CO, then the Contractor shall obtain alternative software and submit for approval. The CO will provide options for suitable software, if necessary.

##### **1.2 QUALITY CONTROL**

All survey, layout, and related work shall be performed and signed by a qualified land surveyor registered in the State of Oregon.

##### **1.3 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals with an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-08 Statements

Survey Crew Qualifications; GA.

Prior to start of any survey work, the Contractor shall submit name, address, telephone number, and qualifications of the surveyor, crew chief, superintendent, and all other persons who are proposed to perform surveys or survey-related duties to the Contracting Officer (CO) for review and acceptance.

## SD-18 Records

Field Notes, Computations, and Survey Quantities; GA.

On the day the Contractor submits request for progress payment, the Contractor shall furnish the CO copies of all field notes, computations, any records relating to the quantity survey or to the layout of the work, and an IBM PC-compatible version of any computer software required to interpret the finished data and records. The Contractor is responsible for converting data and drawing files to a standard software version approved by the CO. Microstation, Version 5.0 “DGN” binary format is preapproved for drawing files and standard ASCII format is preapproved for data files.

## 1.4 PROJECT RECORD DOCUMENTS

1.4.1 The Contractor shall maintain on site a complete, accurate log of control of survey work as it progresses.

1.4.2 Upon completion of the work, the Contractor shall submit Record Documents to the CO under the provisions of Section 01780 RECORD DRAWINGS.

## PART 2 PRODUCTS (NOT USED)

## PART 3 EXECUTION

### 3.1 GENERAL

The Contractor shall exercise care during the execution of the work to minimize any disturbance to existing property and to the landscape in the areas surrounding the work site and to ensure survey crews do not traverse into controlled or potentially contaminated areas. The Contractor shall minimize work conducted in areas identified on the Drawings as wetlands, and shall only enter wetland areas when necessary, ensuring minimal disturbance of the wetland areas. Surveys by the Contractor shall include, but not be limited to, the following:

- a. Inspection and initial survey
- b. Survey to establish new bench marks
- c. Survey to establish local grid
- d. Layout surveys
- e. Survey after subgrade preparation
- f. Surveys for quantities
- g. Well abandonment/protection surveys
- h. Surveys for grading
- i. Initial settlement monitoring survey

- j. Any surveys to reestablish control points
- k. Local grid
- l. Layout surveys or grade stakes
- m. Final record survey
- n. Any other surveys indicated or implied by these specifications or necessary to complete the work. The Contractor shall comply with all requests by the CO for additional surveys deemed necessary to verify that conditions of the Contract are met. Any surveys necessary to correct defects in the work shall be performed by the Contractor at no additional cost to the Government.

### 3.2 SURVEY REFERENCE POINTS

3.3.1 The Contractor shall establish a minimum of three new, permanent survey bench marks as permanent reference points at the locations shown on the Drawings. Permanent bench marks shall be constructed to meet the requirements of ORS 92.060(1). The Contractor shall protect survey control points prior to starting site work and preserve permanent reference points during construction. The Contractor shall not relocate site reference points without prior written approval from the CO.

3.3.2 The Contractor shall promptly report to the CO the loss, damage, or destruction of any reference point or relocation required because of changes in grades or other reasons. The Contractor shall replace dislocated survey control points based on original survey control at no additional cost to the Government. Replacement of dislocated survey control points shall be done by a land surveyor licensed in the State of Oregon. Survey accuracy used to relocate disturbed control points shall be equal to or better than that with which the original control was set. At a minimum, control points shall be reset to within the tolerance described in Paragraph 3.4.3.

### 3.3 INSPECTION AND INITIAL SURVEY

The Contractor shall verify existing site conditions, including but not limited to locations of existing site reference and survey control points, utilities, topography, and site features, prior to starting work. The Contractor shall promptly notify the CO of any discrepancies discovered. The Contractor shall also verify layouts periodically during construction. The Contractor shall perform an initial topographic survey and damage inspection prior to the start of work activities at the site. The survey shall include topography, site features, all structures and identified aboveground utilities. The survey shall extend a minimum of 50 feet (15 meters) past the site property boundary and shall include the limits of site work. The survey shall include information to MSL 0.00 on the bay side of the property. The survey information and damage inspection results shall be compared to the site conditions indicated on the drawings. Any discrepancies in existing site conditions, damage to existing facilities or missing items shall be noted in writing and provided to the CO prior to the start of site work.

### 3.4 SURVEY REQUIREMENTS

3.4.1 The Contractor shall reference survey and site reference points to the provided control monuments and record locations of survey control points, with horizontal and vertical data, on Project Record Documents. The Contractor is warned that elevation data for permanent benchmarks already located in the landfill area may be in error due to settlement of the landfill.

3.4.2 The Contractor shall with its own forces obtain working or construction lines or grades as needed. The Contractor shall install and maintain the local grid on 100 foot (30 meter) centers as shown on the Drawings. Stakes used to mark the grid shall be readily visible for use as construction reference points throughout the project.

3.4.3 All control surveys for elevation shall be  $\pm 0.01$  foot (0.3 centimeters [cm]) and, for horizontal, control angles shall be to the nearest twenty (20) seconds  $\pm 10$  seconds, and measured distances shall be to  $\pm 0.01$  foot (0.3 cm). All measurement surveys for elevation shall be to the nearest 0.01 foot  $\pm 0.005$  (0.15 cm) foot and for horizontal distances shall be to  $\pm 0.1$  foot (3 cm).

3.4.4 The Contractor shall provide all materials as required to properly perform the surveys, including, but not limited to, instruments, tapes, rods, measures, mounts and tripods, stakes and hubs, nails, ribbons, other reference markers, and all else as required. All material shall be of good professional quality and in first-class condition.

3.4.5 All lasers, transits, and other instruments shall be calibrated and maintained in accurate calibration throughout the execution of the work. Calibration certificates shall be submitted to the CO prior to the use of any instrument.

3.4.6 The Contractor shall furnish all materials and accessories (i.e., grade markers, stakes, pins, spikes, etc.) required for the proper location of grade points and line.

3.4.7 All marks given shall be carefully preserved and, if destroyed or removed without the CO's approval, they shall be reset, if necessary, at the Contractor's expense.

### 3.5 SURVEYS FOR QUANTITIES

The Contractor shall conduct quantity surveys and the data derived from these surveys shall be used in computing the progress quantities of work performed. The Contractor shall conduct the following surveys:

- a. Survey after subgrade preparation prior to preloading
- b. Final "as-built" survey, including, but not limited to, survey of the final landfill surface final preload pile (sequence number 5), roads, utilities, and other facilities installed under this contract.



The Contractor shall conduct surveys and computations for any period for which progress payments are requested. These surveys and computations shall be done under the supervision of and shall be certified by a Licensed Land Surveyor in the State of Oregon. A surveyor or engineer having at least 2 years of experience in computing earthwork quantities shall perform quantity calculations. The surveys shall also be conducted under the direction of a representative of the CO, unless the CO waives this requirement in a specific instance. The Contractor shall make such computations based on the surveys or provide confirmation survey information indicating compliance with the Drawings and specifications for any period for which progress payments are requested. The CO will make such computations as are necessary to verify the quantities of construction.

### 3.6 SURVEY FOR LANDFILL SETTLEMENT

3.6.1 The Contractor shall provide a minimum of six settlement plates for this project. The settlement plates shall be constructed of steel to the dimensions shown on the Drawings.

3.6.2 Settlement plates shall be installed at locations shown on the Drawings for each preload stockpile, or as directed by the CO.

3.6.3 The Contractor shall survey initial elevations at the base plate and at the top of the vertical settlement rod at the time the movement is installed and survey plumb and elevation of the settlement plates after preload pile placement and adjust if necessary.

3.6.4 The Contractor shall ensure that the settlement plates are centrally located within the sliding collar to allow independent movement without friction.

3.6.5 The Contractor shall relocate and re-establish the settlement plates for each preload stockpile.

3.6.6 The CO or others under a separate contract will monitor settlement plates following the initial readings performed by the Contractor. The Contractor shall provide the CO with the initial settlement plate readings.

### 3.7 SURVEY OF MONITORING WELL EXTENSIONS

3.7.1 A ground elevation to the closest 0.1 foot (3 cm) shall be obtained at each protected monitoring well extended off the preload grade. The highest point on the top of the riser pipe will serve as a measurement point.

3.7.2 The elevation of the top of the monitoring well extension shall reference this point and shall be surveyed to the nearest 0.01 foot (3 mm) using the National Geodetic Vertical Datum of 1988.

3.7.3 The location, identification, coordinates, and elevations of the wells shall be plotted on maps with a scale large enough to show their location with reference to other structures.

3.7.4 The CO or others under a separate contract will monitor the protected wells for LNAPL levels. The Contractor shall provide the CO with the monitoring well extension coordinates.

### 3.8 SURVEY RECORDS

On the day the Contractor submits request for progress payment, the Contractor shall furnish the CO originals of all field notes, computations, any records relating to the quantity survey or to the layout of the work, and an IBM PC-compatible version of any computer software required to interpret the finished data and records. The CO will use them as necessary to verify the amount of progress payments. The survey records shall be kept updated as construction progresses with a marked-up set of record drawings indicating locations of permanent features and preload stockpile configurations. The Contractor shall retain copies of all such material furnished to the CO. In addition, Contractor shall provide copies of all field notes, maps, or other records within 5 calendar days of completion of field work. The Contractor shall perform any necessary surveys to update record drawings and produce final Record Drawings in accordance with the provisions of Section 01780 RECORD DRAWINGS. The final coordinates reported on the Record Drawings shall use the State Plane Coordinate System, Oregon North Zone, using the North American Datum (NAD 1927).

### 3.9 PAYMENT AS AN INCIDENTAL

The cost to the Contractor of all work and delays occasioned by giving lines and grades, or making other necessary measurements, will be considered as having been included in and incidental to the lump sum prices and unit prices for other items of the work.

**END OF SECTION**

## **SECTION 01780**

### **RECORD DRAWINGS**

#### **PART 1 GENERAL**

##### **1.1 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

###### **SD-02 Data**

Record Field Data; GA.

Two sets of the Record Field Data shall be submitted to the Contracting Officer (CO) for review and approval a minimum of 20 calendar days prior to the date of final inspection. If review of the preliminary Record Drawings reveals errors and/or omissions, the drawings will be returned to the Contractor for corrections. The Contractor shall make all corrections and return the drawings for backcheck to the CO within 10 calendar days of receipt. When submitted drawings are accepted, one set of marked drawings will be returned to the Contractor for the completion of the Record Drawings.

###### **SD-04 Drawings**

Final Record Drawings; GA.

The final Record Drawings shall be completed and returned together with the approved preliminary Record Drawings to the U.S. Army Corps of Engineers, Seattle District Office, Survey Branch, Engineering Records, within 30 calendar days of final acceptance. All drawings from the original Drawings set shall be included, including the drawings where no changes were made. The Government will review all final Record Drawings for accuracy and conformance to the drafting standards and other requirements contained in paragraph 3.2 RECORD ELECTRONIC FILE DRAWINGS. The drawings will be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the drawings to the same office within 7 calendar days of receipt.

Electronic Record Drawings; FIO.

No later than 30 calendar days after final acceptance a complete set of Record Drawings shall be submitted in Intergraph MicroStation electronic file format. The electronic file format, layering standards and submittal requirements are specified in paragraph 3.2 ELECTRONIC FILE RECORD DRAWINGS.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.1 RECORD FIELD DATA**

#### **3.1.1 General**

The Contractor shall keep at the construction site two complete sets of full-size Drawings, reproduced at Contractor expense, one for the Contractor's use, one for the Government. During construction, both sets of prints shall be marked to show all deviations in actual construction from the Drawings. The color red shall be used to indicate all additions and green to indicate all deletions. The drawings shall show the following information but not be limited thereto:

- a. The locations and description of any existing utilities that are located during performance of the work, new utility lines and other installations of any kind or description known to exist within the construction area. The location includes dimensions and/or survey coordinates to permanent features.
- b. The locations and dimension of any changes within the building or structure, and the accurate location and dimension of all underground utilities and facilities.
- c. Correct grade or alignment of roads, structures, and utilities if any changes were made from the Drawings.
- d. Correct elevations if changes were made in site grading from the Drawings.
- e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including, but not limited to, fabrication erection, installation, and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- f. Geomembrane installation information including, but not limited to, panel numbers, seam numbers, location of repairs, samples, and penetrations.
- g. The topography and grades of all drainage installed or affected as part of the project construction.
- h. All changes or modifications from the original design and from the final inspection.

Where Drawings or specifications allow options, only the option actually used in the construction shall be shown on the Record Drawings. The option not used shall be deleted.

These deviations shall be shown in the same general detail utilized in the Drawings. Marking of the prints shall be pursued continuously during construction to keep them up to date. In

addition, the Contractor shall maintain full-size marked-up drawings, survey notes, sketches, nameplate data, pricing information, description, and serial numbers of all installed equipment. This information shall be maintained in a current condition at all times until the completion of the work. The resulting field-marked prints and data shall be referred to and marked as “Record Field Data,” and shall be used for no other purpose. They shall be made available for inspection by the CO’s representative whenever requested during construction and shall be jointly inspected for accuracy and completeness by the CO’s representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. Failure to keep the Record Field Data (including Equipment-in-Place lists) current shall be sufficient justification to withhold a retained percentage from the monthly pay estimate.

### 3.2 RECORD ELECTRONIC FILE DRAWINGS

No earlier than 30 calendar days after award the Government will have available for the Contractor one set of Intergraph MicroStation electronic file format Drawings, to be used for preparation of Record Drawings. The electronic file drawings will be available on either 3.5-inch (89-millimeter [mm]) 1.44 MB floppy disks or ISO-9660 CD-ROM, as directed by the CO. The Contractor has 30 calendar days after the receipt of the electronic file to verify the usability of the data files, and bring any discrepancies to the attention of the CO. Any discrepancies will be corrected within 15 calendar days and files returned to the Contractor. The Contractor shall incorporate all deviations from the original Drawings as recorded in the approved “Record Field Data” (see Paragraph 3.1.1). The Contractor shall also incorporate all the written modifications to the Drawings which were issued by amendment or contract modification. All revisions and changes shall be incorporated, i.e. items marked “deleted” shall be deleted, clouds around new items shall be removed, etc.

The Record Drawings shall be done in a quality equal to that of the originals. Line work, line weights, lettering, and use of symbols shall be the same as the original line work, line weights, and lettering, and symbols. Separate layers from the original Drawing layers shall be used for all revisions made. If additional drawings are required they shall be prepared in electronic file format under the same guidance. When final revisions have been completed, each drawing shall be identified with the words “RECORD DRAWINGS” in block letters at least 3/8-inch (0.95-centimeter) high placed above the title block if space permits, or if not, below the title block between the border and the trim line. The date of completion and the words “REVISED RECORD DRAWINGS” shall be placed in the revision block above the latest revision notation.

#### 3.2.1 Electronic File Submittal Requirements

The MicroStation electronic file(s) deliverable shall be in MicroStation version 5.0 ‘DGN’ binary format. All support files required to display or plot the file(s) in the same manner as they were developed shall be delivered along with the files. These files include but are not limited to Font Libraries, Pen Tables, and Referenced files.

Layering shall conform to the guidelines defined by the American Institute of Architects (AIA) standard document, “CAD Layer Guidelines”, copyright 1997. An explanatory list of

which layer is used at which drawing and an explanatory list of all layers which do not conform to the standard AIA CAD Layer Guidelines including any user definable fields permitted by the guidelines shall be provided with each submittal.

Electronic File Deliverable Media: All electronic files shall be submitted on MS-DOS FAT or extended FAT format 3.5-inch (89-mm) 1.44 megabyte (MB) floppy disks or ISO 9660 format CD-ROM, as directed by the CO. Two complete sets of disks shall be submitted along with one complete set of prints and one complete set of mylars taken from the disks. Each floppy disk shall be clearly marked with typewritten self-adhesive disk labels which shall contain the following information: Contractor's firm name, project name and location, submittal type (RECORD DRAWINGS), the name of each file contained within the disk or archive file, the format and version/release number of each file, a disk number indicating the numeric sequence of the disk in the submittal along with the total number of disks in the submittal, and date the disk was made. If submittal is made on CD-ROM, only the Contractor's firm name, project name and location, submittal type (RECORD DRAWINGS) and date will be required. Each submittal shall be accompanied by a hard copy transmittal sheet that contains the above information together with tabulated information about each file, as shown below:

<u>Electronic File Name</u>	<u>Plate Number</u>	<u>Drawing Title</u>
-----------------------------	---------------------	----------------------

Electronic version of the table shall be included with each submittal set of disks.

### 3.3 PAYMENT

All costs incurred by the Contractor in the preparation and furnishing of Record Drawings in electronic file format shall be included in the contract price for Record Drawings. Approval and acceptance of the final Record Drawings shall be accomplished before final payment is made to the Contractor.

### 3.4 ADDITIONAL RECORD DRAWING PRINTS

One set of marked-up record blueline prints shall be furnished at the time of system acceptance testing. These record blueline prints shall be in addition to the submittals of marked-up Record Drawing blueline prints specified elsewhere in the contract.

**END OF SECTION**

## **SECTION 01785**

### **WARRANTY OF CONSTRUCTION**

#### **PART 1 GENERAL**

##### **1.1 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-08 Statements

Manufacturer, Supplier, and Subcontractor Warranties; GA.

Two copies of all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract shall be submitted for review and approval a minimum of 20 calendar days prior to the date of final inspection. The Contractor shall obtain all warranties that would be given in normal commercial practice and require all warranties to be executed, in writing.

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.1 WARRANTY OF CONSTRUCTION (APR 1994) (FEDERAL ACQUISITION REGULATION [FAR] 52.246-21)**

3.1.1 In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph 3.1.9 of this Clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

3.1.2 This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

3.1.3 The Contractor shall remedy at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to Government-owned or -controlled real or personal property when that damage is the result of:

- a. The Contractor's failure to conform to contract requirements, or
- b. Any defect of equipment, material, workmanship, or design furnished.

3.1.4 The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

3.1.5 The Government will notify the Contractor, in writing or by telephone, after the discovery of any failure, defect, or damage and the Contractor shall respond and be on site to investigate the problem within 1 working day after notification. The Contractor shall furnish, and maintain, a 24-hour emergency telephone number as the point of contact. For failures, defects, or damage causing loss of power or heat, the Contractor shall respond and mitigate problem within 4 hours.

3.1.6 If the Contractor fails to remedy any failure, defect, or damage within 5 working days after receipt of notice, the Government will have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

3.1.7 With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:

- a. Obtain all warranties that would be given in normal commercial practice
- b. Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer
- c. Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer

3.1.8 In the event the Contractor's warranty under paragraph 3.1.2 of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

3.1.9 Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

3.1.10 This warranty shall not limit the Government's rights under the Inspection of Construction clause of this contract with respect to latent defects, gross mistakes, or fraud.



## 3.2 ADDITIONAL WARRANTY REQUIREMENTS

### 3.2.1 Pre-Warranty Conference

Prior to contract completion and at a time designated by the Contracting Officer the Contractor shall meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of the Paragraph: WARRANTY OF CONSTRUCTION. Communication procedures for the Contractor notification of warranty defects, priorities with respect to the type of defect and other details deemed necessary by the Contracting Officer for the execution of the construction warranty shall be established/reviewed at this time. The Contractor will furnish the name, telephone number and address of the service representative which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This single point of contact will be located within the local service area of the warranted construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any Contractual responsibilities in connection with the paragraph WARRANTY OF CONSTRUCTION.

NOTE: Local service area is defined as the area in which the Contractor or his representative can meet the response times as described in paragraph WARRANTY OF CONSTRUCTION and in any event shall not exceed 200 miles radius of the construction site.

### 3.2.2 Equipment Warranty Identification Tags

The Contractor shall provide warranty identification tags on all Contractor and Government furnished equipment which is Contractor installed. (Same equipment as listed on the Equipment-In-Place List required under Section 01705 EQUIPMENT-IN-PLACE LIST).

The tags and information shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and shall be installed in a position that is easily noticeable. If the equipment surface is not suitable for adhesive back tags, the Contractor shall submit an alternative to the Government for review and approval. Contractor furnished equipment that has differing warranties on its components will have each component tagged/identified.) Lettering on the tags shall be block-type upper case and easily readable. Tags shall be similar in format to the following:

EQUIPMENT WARRANTY
CONTRACTOR FURNISHED EQUIPMENT
MFG _____ MODEL NO. _____
SERIAL NO. _____
CONTRACT NO. _____
CONTRACTOR NAME _____
CONTRACTOR ADDRESS _____
CONTRACTOR PHONE NO. _____
DATE WARRANTY EXPIRES _____
IN CASE OF WARRANTY ACTION FIRST CONTACT (Point of contact, including name and telephone number.)

EQUIPMENT WARRANTY
GOVERNMENT FURNISHED EQUIPMENT
MFG _____ MODEL NO. _____
SERIAL NO. _____
CONTRACT NO. _____
DATE EQUIPMENT PLACED IN SERVICE _____

In the case of equipment repaired or replaced by the Contractor during the warranty period, the Equipment Warranty tag shall be replaced or updated, as applicable, to indicate the scope of the repair/replacement and the new warranty expiration date in accordance with paragraph WARRANTY OF CONSTRUCTION.

**END OF SECTION**

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## SECTION 01787

### EQUIPMENT-IN-PLACE LIST

#### PART 1 GENERAL

##### 1.1 SUBMITTALS

Data listed in PART 3 of this section shall be submitted in accordance with section 01330 SUBMITTAL PROCEDURES.

Equipment-In-Place List: G.

The final equipment-in-place list shall be completed and returned to the Contracting Officer within 30 calendar days of the final inspection. The Contracting Officer will review all final Equipment-In-Place Lists for accuracy and conformance to the requirements contained in DIVISION 1 GENERAL REQUIREMENTS. The lists shall be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the lists to the Contracting Officer within 7 calendar days of receipt.

#### PART 2 PRODUCTS (NOT APPLICABLE)

#### PART 3 EXECUTION

##### 3.1 EQUIPMENT-IN-PLACE LIST:

Contractor shall submit for approval, at the completion of construction, a list of equipment-in-place. This list shall be updated and kept current throughout construction, and shall be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submission of each monthly pay estimate. A sample form showing minimum data required is provided at the end of this section. The EQUIPMENT-IN-PLACE LIST shall be comprised of all equipment falling under one or more of the following classifications:

- a. Each piece of equipment listed on the mechanical equipment schedules.
- b. Each electrical panel, switchboard, and MCC panel.
- c. Each transformer.
- d. Each piece of equipment or furniture designed to be movable.

- e. Each piece of equipment that contains a manufacturer's serial number on the name plate.
- f. All Government furnished, Contractor installed equipment per a. through e. (price data excluded)

**EQUIPMENT-IN-PLACE LIST****CONTRACT NO.:** \_\_\_\_\_

Specification Section: \_\_\_\_\_ Paragraph No. \_\_\_\_\_

**ITEM DESCRIPTION:** \_\_\_\_\_

Item Name: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Capacity: \_\_\_\_\_ Replacement Cost \_\_\_\_\_

**ITEM LOCATION:**

Building Number: \_\_\_\_\_ Room Number: \_\_\_\_\_

or Column Location: \_\_\_\_\_

**MANUFACTURER INFORMATION:**

Manufacturer Name: \_\_\_\_\_

Trade Name (if  
different from item name): \_\_\_\_\_

Manufacturer's Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

**WARRANTY PERIOD:** \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

END OF SECTION

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## **SECTION 01788**

### **MAINTENANCE AND PROJECT CLOSEOUT**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

This section covers the requirements for final reporting, cleaning, inspection, and other procedures necessary for contract closeout.

##### **1.2 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-09 Reports

Project Closeout Report; GA.

The Contractor shall submit a draft Project Closeout Report for approval no later than 60 calendar days after completion of construction activities. The report shall be provided to the CO. A minimum of 20 calendar days, exclusive of mailing time, will be required for Government review of the Draft Report. The Final Report shall also be submitted within 20 calendar days of receipt of Draft Report Comments from USACE. In general this report shall include all documentation of construction activities. This report shall include, as a minimum, the following items:

- a. The Cost and Performance Reports in accordance with Section 01240 COST AND PERFORMANCE REPORT
- b. Contractor Quality Control records in accordance with Section 01451 CONTRACTOR QUALITY CONTROL
- c. Safety and Health Phase-Out Report in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW)
- d. Waste management records in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS
- e. Record Drawings showing limits of final excavation, backfilling, capping, and final topography in accordance with Section 01780 RECORD DRAWINGS

## SD-19 Operation and Maintenance (O&M) Manual

Draft O&M Manual; GA.

At least 30 calendar days prior to completion of the project, the Contractor shall submit 15 copies of the Draft O&M Manual to the Contracting Officer (CO) for review and comment, in accordance with paragraph 3.1 OPERATION AND MAINTENANCE MANUAL. A minimum of 20 calendar days, exclusive of mailing time, will be required for Government review of the Draft O&M Manual. The complete set of review comments will then be forwarded by the CO to the Contractor for incorporation into the Final O&M Manual.

Final O&M Manual; GA.

The Contractor shall make all revisions required by the CO and resubmit 15 copies of the Final O&M Manual and written responses to review comments for review and approval within 20 calendar days of receipt of comments from USACE. A minimum of 30 calendar days will be required for final review and approval by the CO.

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### 3.1 OPERATION AND MAINTENANCE MANUAL

- a. This section provides, in conjunction with other referenced sections, general requirements for the Contractor's O&M Manual. The O&M Manual details post-construction tasks which must be performed to ensure the long-term integrity of the light non-aqueous phase liquid (LNAPL) collection system. The Contractor shall prepare and submit a Draft and a Final O&M Manual for Government review and approval in accordance with Section 01330 SUBMITTAL PROCEDURES. The O&M Manual submitted for this project shall cover all equipment and systems installed at the site. However, a section of the manual shall be written as a stand-alone document specifically for operation and maintenance of the LNAPL collection system. The manual shall be provided in indexed booklet form with all vendor-supplied manuals and drawings included in the appendix or as an attachment.
- b. The O&M Manual shall completely outline all procedures necessary to operate and maintain the equipment installed by the Contractor. The O&M Manual shall address the following:
  - (1) Identity of the site Custodian and other points of contact

- (2) Site background

- (3) Description of facilities
  - (4) Equipment information, such as the manufacturer's name, model number, service manual, and brief description of all equipment and their basic operating features
  - (5) Maintenance information, including routine maintenance procedures and a recommended maintenance schedule; check lists for site and equipment inspection along with inspection frequency shall be included.
  - (6) Record drawings showing piping, valve locations, equipment layout, and simplified wiring and control diagrams
  - (7) Troubleshooting guide discussing possible equipment breakdowns and recommended repairs
  - (8) Health and safety
  - (9) Record keeping
  - (10) Parts lists
- c. The O&M Manual for the LNAPL Collection System shall be assembled as a stand-alone document and include the following:
- (1) LNAPL collection system description and as-built construction diagrams
  - (2) Detailed step-by-step description and a summary checklist of startup, operation, and shutdown procedures
  - (3) Summary of recommended inspection tasks, including frequency and an inspection field form
  - (4) Summary of recommended maintenance including frequency
  - (5) Troubleshooting guide
  - (6) Skimmer and pump repair procedures
  - (7) LNAPL transfer and disposal procedures
  - (8) A detailed parts list of all components of the LNAPL collection system, including suppliers with address and phone number

- (9) Vendor supplied instruction manuals included as an appendix
- (10) Collection tank (aboveground storage tank [AST]) gauging chart to convert gauging information measured in 0.01-feet (0.3-centimeter) increments into gallons
- (11) Warranty information and technical support contact information summarized in a table including length of warranty and type of coverage.

Forms to facilitate operation and maintenance activities and record keeping shall be included in the O&M Manual, including a Periodic Inspection Log and a Maintenance Record Form.

### 3.2 DECONTAMINATION

#### 3.2.1 General:

- a. Decontamination: Low flow, high-pressure hot water wash of the Contractor's equipment and materials
- b. Collection and disposal of all Contractor-generated contaminated material and equipment on the site for which decontamination is inappropriate
- c. Wash down of equipment decontamination pad and decontamination sumps by low flow, high pressure hot water, including collection of sediments and washwater to be stored and disposed of in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS.
- d. Certification of decontaminated equipment, materials, and decontamination pad by wipe samples if required by rental companies
- e. After certified clean (if required), removal of all of the Contractor's equipment, materials, and decontamination pads

#### 3.2.2 Equipment and Unsalvageable Material Decontamination

Decontamination shall take place on the equipment decontamination pad and shall consist of degreasing (if required) followed by low-flow, high-pressure hot water. Special attention shall be paid to removal of material on and within the undercarriage of trucks and sprockets of crawler equipment, and undercarriage, tires, and axles of trucks and rubber tire-mounted equipment.

#### 3.2.3 Equipment Decontamination Certification

Each piece of the Contractor's equipment, material, and decontamination pads and sumps shall be certified clean, before removal from site.

### 3.2.4 Tools Decontamination

Tools and items for which decontamination is difficult or impossible to verify shall be disposed of.

### 3.2.5 Temporary Facilities

Decontamination of temporary facilities located within the Support Zone (SZ) shall be limited to exterior cleaning prior to removal from site. Decontamination and testing shall be conducted in accordance with the procedures specified in paragraph 3.2.2 Equipment and Unsalvageable Material Decontamination and paragraph 3.2.3 Equipment Decontamination Certification.

### 3.2.6 Final Approval

Prior to removal from site, all decontaminated equipment and material shall be inspected and analytical results reviewed and approved by the Contractor's Site Safety and Health Officer (SSHO) and the CO.

### 3.2.7 Certification

Certification of decontamination shall be attested to by the Contractor's Safety Officer and approved by the CO.

### 3.2.8 Documentation

Original decontamination certificates shall be provided to the CO. A copy of each decontamination certificate will be provided to the Contractor's SSHO. The original certificate will be maintained at the CO's office.

## 3.3 CLEANING THE PROJECT SITE

The cleaning work shall include the following:

- Removal of all waste such as excess construction material, wood, bituminous concrete, debris, and any other foreign material
- Removal of temporary site facilities and utilities

## 3.4 ADMINISTRATIVE PROVISION

### 3.4.1 Substantial Completion

Prior to substantial completion, the CO shall present to the Contractor a punch list of work items to be completed in accordance with the Contract Documents. When the Contractor considers the

work on the punch list to be substantially complete, the Contractor shall submit written notice with a list of items to be completed or corrected and the estimated dates of the completion or correction.

#### 3.4.2 Correcting Deficiencies

Should inspection by the CO find the work is not substantially complete, the CO will promptly notify the Contractor in writing, listing observed deficiencies. The Contractor shall remedy the deficiencies and send a new written notice of substantial completion. This procedure shall continue until such time when the CO is satisfied with such repairs and corrections. When the CO finds the work to be substantially complete, the CO will prepare a Certificate of Substantial Completion with a list of deficiencies which require timely correction and/or nonconstruction deficiencies in accordance with provisions of the General Conditions.

### 3.5 FINAL ACCEPTANCE

#### 3.5.1 Documentation

When the Contractor considers the work to be complete, the Contractor shall submit to the CO written certification that:

- a. Contract Documents have been reviewed;
- b. Work has been inspected for compliance with Contract Documents;
- c. Work has been completed in accordance with Contract Documents, and deficiencies listed in the Certificate of Substantial Completion have been corrected; and
- d. Work is complete and ready for final inspection.

#### 3.5.2 Deficiency Notification and Corrections

Should the CO inspection find work incomplete, the CO will promptly notify the Contractor in writing a listing of observed deficiencies. The Contractor shall remedy the deficiencies and send a second certification of final completion. This procedure shall continue until such time when the CO is satisfied with such repairs and corrections.

#### 3.5.3 Acceptance Certification

When the CO finds work is complete, the CO will consider closeout submittals, and a Final Acceptance Certificate will be issued to the Contractor. When the Contractor receives the Final Acceptance Certificate, the Contractor shall submit final invoice for final payment.

### 3.6 MAINTENANCE FOLLOWING CONSTRUCTION

The Contractor shall maintain the site, equipment and system per manufacturers specifications, the approved O&M Manual, and generally accepted industry standard practice. The Contractor shall visually inspect the site facilities no less than biweekly (once every other week) to ensure proper operation of the LNAPL collection system, until such time as the project is tuned over to the Phase II Contractor or the Government.

**END OF SECTION**

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## **SECTION 02120**

### **TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

#### **CODE OF FEDERAL REGULATIONS (CFR)**

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 279	Standards for the Management of Used Oil
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 302	Designation, Reportable Quantities, and Notification

40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

#### OREGON REVISED STATUTES

ORS 468a	Air Quality
ORS 466	Storage, Treatment, and Disposal of Hazardous Waste and PCBs

### 1.2 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

#### SD-1 Data

Waste Management Plan; GA.

A plan detailing the manner in which all wastes shall be managed in accordance with paragraph 3.1.5 WASTE MANAGEMENT PLAN, 45 calendar days after Notice to Proceed (NTP), as part of the Remedial Action Management Plan (RAMP), Section 01400.

#### SD-09 Reports

Record Keeping; GA.

Information necessary to file state annual or U.S. Environmental Protection Agency (EPA) biennial reports for all hazardous waste transported, treated, stored, or disposed of under this contract. The Contractor shall not forward these data directly to the regulatory agency but to the Contracting Officer (CO) at the specified time. The submittal shall contain all the information necessary for filing of the formal reports in the form and format required by the governing Federal or state regulatory agency. A cover letter to the CO shall accompany the data to include the contract number, Contractor name, and project location.

#### Spill Response; FIO.

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), or Toxic Substances Control Act (TSCA)-regulated waste (as designated in 40 CFR 761), or pollutant or contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), the Contractor shall notify the CO immediately. If the spill exceeds a reporting threshold, the Contractor shall follow the pre-established procedures for immediate reporting to the CO.

#### Spill Prevention, Control, and Countermeasures Plan; GA

A spill prevention, control, and countermeasure plan applicable to waste management shall be prepared as part of the Environmental Protection Plan in accordance with Section 01410 ENVIRONMENTAL PROTECTION and Section 01400 REMEDIAL ACTION MANAGEMENT PLAN.

#### Exception Reports; GA.

In the event that a manifest copy documenting receipt of hazardous waste at the treatment, storage, and disposal facility is not received within 35 calendar days of shipment initiation, the Contractor shall prepare and submit an exception report to the CO within 37 calendar days of shipment initiation.

#### SD-13 Certificates

#### Qualifications; FIO.

Qualifications documenting the experience of the Transportation and Disposal Coordinator meets the requirements of paragraph 1.3.1 Transportation and Disposal Coordinator, shall be provided to the CO. Copies of the current certificates of registration issued to the Contractor, the Contractor's employees and/or subcontractors or written statements certifying exemption from these requirements in accordance with paragraph 1.3.2 Training and 1.3.3 Certification shall be provided to the CO.

#### Offsite Policy Compliance Certification; GA.

A memorandum certifying that EPA considers the facilities to be used for all off-site disposal to be acceptable in accordance with the Offsite policy in 40 CFR 300.440. This certification shall be provided for wastes from Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 et seq., sites as well as from Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 U.S.C. 9601 et seq., responses. See Attachment 02120-A SAMPLE OFFSITE POLICY COMPLIANCE CERTIFICATION MEMORANDUM at the end of this section.

#### Certificates of Disposal/Destruction; FIO.

Certificates documenting the ultimate disposal of hazardous and TSCA-regulated wastes within 180 calendar days of initial shipment. Receipt of these certificates will be required for final payment.

#### Packagings Certification; GA.

All transportation-related shipping documents shall be submitted to the CO, including draft hazardous waste manifests; draft land disposal restriction notifications; draft Notification of PCB Activity; draft manifests for PCBs; draft bill of lading for hazardous materials; lists of corresponding proposed labels, packages, marks, and placards to be used for shipment; waste profiles and supporting waste analysis documents, for review a minimum of 14 calendar days prior to anticipated pickup. All hazardous waste manifests and notifications shall be approved and signed by the government prior to transporting hazardous waste. Packaging assurances shall be furnished prior to transporting hazardous material. Generator copies of hazardous waste manifests, land disposal restriction notifications, generator copies of manifests used for initiating shipments of PCBs, used oil invoices/shipment records, bill of lading, and supporting waste analysis documents shall be furnished when shipments are originated.

#### SD-18 Records

#### Notices of Non-Compliance and Notices of Violation; FIO.

Notices of non-compliance or notices of violation by a Federal, state, or local regulatory agency issued to the Contractor in relation to any work performed under this contract. The Contractor shall immediately provide copies of such notices to the CO. The Contractor shall also furnish all relevant documents regarding the incident and any information requested by the CO, and shall coordinate its response to the notice with the CO or his designated representative prior to submission to the notifying authority. The Contractor shall also furnish a copy to the CO of all documents submitted to the regulatory authority, including the final reply to the notice, and all other materials, until the matter is resolved.

### 1.3 QUALIFICATIONS

#### 1.3.1 Transportation and Disposal Coordinator

The Contractor shall designate, by position and title, one person to act as the Transportation and Disposal Coordinator (TDC) for this contract. The TDC shall serve as the single point of contact for all environmental regulatory matters and shall have overall responsibility for total environmental compliance at the site including but not limited to accurate identification and classification of hazardous waste, PCB remediation waste, and hazardous materials; determination of proper shipping names; identification of marking, labeling, packaging, and placarding requirements; completion of waste profiles, hazardous waste manifests, PCB manifests, bill of lading, exception

and discrepancy reports; and all other environmental documentation. The TDC shall have, at a minimum, three years of specialized experience in the management and transportation of hazardous waste, including experience dealing with TSCA (PCBs) and management under RCRA.

### 1.3.2 Training

The Contractor's hazardous materials employees shall be trained, tested, and certified to safely and effectively carry out their assigned duties in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE. The Contractor's employees transporting hazardous materials or preparing hazardous materials for transportation shall be trained, tested, and certified in accordance with 49 CFR 172.

The Contractor's employees who are characterizing waste to determine whether it is hazardous or who are completing signage and paper work shall be trained in hazardous waste characterization (40 CFR 262.11) and generator requirements (40 CFR Part 262). Likewise, the Contractor's employees shall be able to identify, handle, and prepare PCB remediation wastes for transport.

### 1.3.3 Certification

The Contractor and/or subcontractors transporting hazardous materials shall possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G.

## 1.4 LAWS AND REGULATIONS REQUIREMENTS

Work shall meet or exceed the minimum requirements established by Federal, state, and local laws and regulations which are applicable. These requirements are amended frequently and the Contractor shall be responsible for complying with amendments as they become effective. In the event that compliance exceeds the scope of work or conflicts with specific requirements of the contract, the Contractor shall notify the CO immediately.

## 1.5 DEFINITIONS

- a. Hazardous Material. A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 U.S.C. Appendix Section 1801 et seq. The term includes materials designated as hazardous materials under the provisions of 49 CFR 172.101 and .102 and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials.

- b. Hazardous Waste. A waste that meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or which has been designated as hazardous by a RCRA authorized state program.
- c. TSCA – regulated waste. PCB liquid wastes at concentrations =50 parts per million (ppm) PCBs. These materials are TSCA-regulated for waste disposal and shall be disposed of at an off-site TSCA-permitted incinerator.
- d. Government-Owned Waste. A waste generated from existing materials at the site and as referred to in 10 U.S.C. 2692.
- e. Contractor-Owned Waste. A waste generated solely by the Contractor during construction activities and not classified as government-owned waste according to 10 U.S.C. 2692.

## 1.6 SITE-SPECIFIC INFORMATION

### 1.6.1 The following waste materials are to be transported off site:

- a. PPE and other solid waste generated by materials brought on site by the Contractor for construction activities. These wastes shall be disposed of at a RCRA Subtitle D permitted landfill, unless the waste meets the criteria to establish it as a hazardous waste as defined in Paragraph 1.5 DEFINITIONS.
- b. Wastewater from decontamination activities designated as hazardous waste. Non-hazardous wastewater from decontamination activities may be discharged to the surface of the landfill at a slow rate to ensure infiltration into the landfill with written approval by the Oregon Department of Environmental Quality (ODEQ) and the CO.
- c. LNAPL collected in the LNAPL storage tanks. LNAPL shall be managed as TSCA-regulated waste.

## PART 2 PRODUCTS

### 2.1 MATERIALS

The Contractor shall provide all of the materials required for the packaging, labeling, marking, placarding, and transportation of hazardous wastes and hazardous materials in conformance with Department of Transportation standards. Details in this specification shall not be construed as establishing the limits of the Contractor's responsibility.

### 2.1.1 Packagings

The Contractor shall provide bulk and non-bulk containers for packaging hazardous materials/wastes consistent with the authorizations referenced in the Hazardous Materials Table in 49 CFR 172.101, Column 8. Bulk and non-bulk packaging shall meet the corresponding specifications in 49 CFR 173 referenced in the Hazardous Materials Table, 49 CFR 172.101. Each packaging shall conform to the general packaging requirements of Subpart B of 49 CFR 173, to the requirements of 49 CFR 178 at the specified packing group performance level, to the requirements of special provisions of column 7 of the Hazardous Materials Table in 49 CFR 172.101, and shall be compatible with the material to be packaged as required by 40 CFR 262. The Contractor shall also provide other packaging-related materials such as materials used to cushion or fill voids in overpacked containers, etc. Sorbent materials shall not be capable of reacting dangerously with, being decomposed by, or being ignited by the hazardous materials being packaged. Additionally, sorbents used to treat free liquids to be disposed of in landfills shall be non-biodegradable as specified in 40 CFR 264.314.

### 2.1.2 Markings

The Contractor shall provide markings for each hazardous material/waste package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D, 40 CFR 262.32 (for hazardous waste), 40 CFR 761.45 (for PCBs), and 40 CFR 61 (for hazardous air pollutants). Markings must be capable of withstanding, without deterioration or substantial color change, a 180-day exposure to conditions reasonably expected to be encountered during container storage and transportation.

### 2.1.3 Labeling

The Contractor shall provide primary and subsidiary labels for hazardous materials/wastes consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 6. Labels shall meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels shall be durable and weather resistant and capable of withstanding, without deterioration or substantial color change, a 180-day exposure to conditions reasonably expected to be encountered during container storage and transportation.

### 2.1.4 Placards

For each off-site shipment of hazardous material/waste, the Contractor shall provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Placards shall be provided for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30-day exposure to open weather conditions and shall meet design requirements specified in 49 CFR 172, Subpart F.

### 2.1.5 Spill Response Materials

The Contractor shall provide spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment (PPE). Spill response materials shall be available at all times in which hazardous materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of material being handled.

## 2.2 EQUIPMENT AND TOOLS

The Contractor shall provide miscellaneous equipment and tools necessary to handle hazardous materials and hazardous wastes in a safe and environmentally sound manner.

## **PART 3 EXECUTION**

### 3.1 ON-SITE WASTE MANAGEMENT

These paragraphs apply to Government-owned waste only. Contractors are prohibited by 10 U.S.C. 2692 from storing Contractor-owned waste on site for any length of time. The Contractor shall be responsible for ensuring compliance with all Federal, state, and local hazardous waste laws and regulations and shall verify those requirements when preparing reports, waste shipment records, hazardous waste manifests, or other documents.

#### 3.1.1 Waste Classification

The Contractor, in consultation with the CO, shall identify all waste codes applicable to each waste stream based on requirements in 40 CFR 261, 40 CFR 761, or any applicable state or local law or regulation. The Contractor shall also identify all applicable treatment standards in 40 CFR 268 and state land disposal restrictions and shall make a determination as to whether or not the waste meets or exceeds the standards. Waste profiles, analyses, classification, and treatment standards information shall be submitted to CO for review and approval.

#### 3.1.2 Accumulation

When accumulating hazardous and/or TSCA waste on site, the Contractor shall comply with generator requirements in 40 CFR 262, 40 CFR 761.65(c), and state or local law or regulations, as applicable. On-site accumulation times shall be restricted to applicable time frames referenced in 40 CFR 262, Section .34, 40 CFR 761.65(c), and state or local law or regulation, as applicable. Accumulation start dates shall commence when waste is first generated (i.e., containerized or otherwise collected for discard). TSCA-regulated waste shall be stored no longer than 30 calendar days from the start date.



### 3.1.3 Containerized Waste

The Contractor shall only use containers in good condition and compatible with the waste to be stored. The Contractor shall be responsible for ensuring containers are closed except when adding or removing waste. The Contractor shall be responsible for immediately marking all waste storage containers. The Contractor shall mark hazardous waste containers with the words “hazardous waste” and other information required by 40 CFR 262, Section .32, 40 CFR 761.65(c), and applicable state or local law or regulation as soon as the waste is containerized, as applicable. An additional marking shall be placed on containers of “unknowns” designating the date sampled, and the suspected hazard. The Contractor shall be responsible for inspecting containers for signs of deterioration and shall be responsible for responding to any spills or leaks.

### 3.1.4 Inspection

The Contractor shall inspect all hazardous waste areas a minimum of bi-weekly (once every two weeks) and shall provide written documentation of the inspection. Inspection logs will contain date and time of inspection, name of individual conducting the inspection, problems noted, and corrective actions taken.

### 3.1.5 Waste Management Plan

Within 45 calendar days after NTP, the Contractor shall prepare a waste management plan as part of the RAMP (Section 01400 REMEDIAL ACTION MANAGEMENT PLAN) detailing the manner in which hazardous and non-hazardous wastes shall be managed and describing the types and volumes of various wastes anticipated to be managed, as well as the management practices to be utilized. The plan shall include management of waste from clearing and grubbing in accordance with Section 02230 CLEARING AND GRUBBING. The plan shall identify the method to be used to ensure accurate piece counts and/or weights of shipments; shall identify waste minimization methods; shall propose facilities to be utilized for treatment, storage, and/or disposal; shall identify areas on site where hazardous wastes are to be handled; shall identify whether transfer facilities are to be utilized; and if so, how the wastes will be tracked to ultimate disposal, and shall identify primary and secondary routes for transportation for all hazardous materials and/or wastes. The plan shall also describe the TSD facility and transporter and status of the facility in accordance with Paragraphs 3.2.1 Description of TSD Facility and Transporter and 3.2.2 Status of the Facility. In addition, the plan shall include certification that the waste will be handled in accordance with all applicable RCRA, TSCA, and Department of Transportation laws and regulations.

## 3.2 OFF-SITE HAZARDOUS WASTE MANAGEMENT

The Contractor shall use RCRA Subtitle C-permitted facilities which meet the requirements of 40 CFR 264 or facilities operating under interim status which meet the requirements of 40 CFR 265 for hazardous waste disposal. Off-site treatment, storage, and/or disposal facilities with significant RCRA violations or compliance problems (such as facilities known to be releasing hazardous constituents into groundwater, surface water, soil, or air) shall not be used. The Contractor shall

use TSCA-permitted facilities which meet the requirements of 40 CFR 761 for disposal of PCB liquids.

#### 3.2.1 Description of TSD Facility and Transporter

The Contractor shall provide the CO with EPA ID numbers, names, locations, and telephone numbers of TSD facilities and transporters. This information shall be contained in the Waste Management Plan for approval prior to waste disposal.

#### 3.2.2 Status of the Facility

Facilities receiving hazardous waste must be permitted in accordance with 40 CFR 270 or operating under interim status in accordance with 40 CFR 265 requirements or must be permitted by an authorized state program. Additionally, prior to using a TSD Facility, the Contractor shall contact the EPA Regional Offsite Coordinator specified in 40 CFR 300.440, to determine the facility's status and document all information necessary to satisfy the requirements of the EPA Offsite Policy and furnish this information to the CO.

#### 3.2.3 Packagings Certification

Prior to shipment of any hazardous material off site, the Contractor's TDC shall provide written certification to the CO that hazardous materials have been properly packaged, labeled, and marked in accordance with Department of Transportation and EPA requirements.

#### 3.2.4 Transportation

The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263 or any applicable state or local law or regulation. Transportation shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. The Contractor shall acquire manifests in accordance with the hierarchy established in 40 CFR 262.21. The Contractor shall prepare hazardous waste manifests for each shipment of hazardous waste shipped off site. Manifests shall be completed using instructions in 40 CFR 262, Subpart B and any applicable state or local law or regulation. Manifests and waste profiles shall be submitted to the CO for review and approval. The Contractor shall prepare land disposal restriction notifications as required by 40 CFR 268 or any applicable state or local law or regulation for each shipment of hazardous waste. Notifications shall be submitted with the manifest to the CO for review and approval. All hazardous waste manifests and notifications shall be approved and signed by the government prior to transporting hazardous waste.

#### 3.2.5 Treatment and Disposal of Hazardous Wastes

The hazardous waste shall be transported to an approved hazardous waste treatment, storage, or disposal facility within 90 calendar days after the storage container is full. TSCA-regulated waste shall be transported to an approved off-site TSCA-permitted incinerator within 30 calendar days

after the accumulation start date. The Contractor shall ship hazardous wastes only to facilities that are properly permitted to accept the hazardous waste or operating under interim status. The Contractor shall ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268 prior to land disposal or TSCA disposal requirements in 40 CFR 761, as applicable. The Contractor shall propose TSD facilities via submission of the Waste Management Plan, subject to the approval of the CO.

### 3.3 HAZARDOUS MATERIALS MANAGEMENT

The Contractor, in consultation with the CO, shall evaluate prior to shipment of any material off site, whether the material is regulated as a hazardous waste in addition to being regulated as a hazardous material, a TSCA-regulated waste, or non-hazardous waste. This shall be done for the purpose of determining proper shipping descriptions, marking requirements, etc., as described below. Chemical characterization of the waste shall be conducted by a certified off-site disposal service or the receiving off-site permitted facility that has been approved by the CO.

#### 3.3.1 Identification of Proper Shipping Names

The Contractor shall use 49 CFR 172, Section .101 to identify proper shipping names for each hazardous material (including hazardous wastes) to be shipped off site. Proper shipping names shall be submitted to the CO in the form of draft shipping documents for review and approval.

#### 3.3.2 Packaging, Labeling, and Marking

The Contractor shall package, label, and mark hazardous materials/wastes using the specified materials and in accordance with the referenced authorizations. The Contractor shall mark each container of hazardous waste of 110 gallons (416 liters) or less with the following:

HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal.

If found, contact the nearest police or public safety authority or the  
U.S. Environmental Protection Agency.

Generator's name \_\_\_\_\_

Manifest Document Number \_\_\_\_\_.

#### 3.3.3 Shipping Documents

The Contractor shall ensure that each shipment of hazardous material sent off site is accompanied by properly completed shipping documents.

#### 3.3.3.1 PCB Waste Shipment Documents

The Contractor shall prepare hazardous waste manifests for each shipment of PCB waste shipped off site. Manifests will be completed using instructions in 40 CFR 761.207 and .208 and all other applicable requirements. Documents shall be submitted to CO for review and approval.

#### 3.3.3.2 Asbestos Waste Shipment Documents (NOT APPLICABLE)

#### 3.3.3.3 Other Hazardous Material Shipment Documents

The Contractor shall prepare a bill of lading for each shipment of hazardous material that is not accompanied by a hazardous waste manifest which fulfills the shipping paper requirements. The bill of lading shall satisfy the requirements of 49 CFR 172, Subpart C, (and 40 CFR 279 if shipping used oil) and any applicable state or local law or regulation, and shall be submitted to the CO for review and approval. For laboratory samples, the Contractor shall prepare bills of lading and other documentation as necessary to satisfy conditions of the sample exclusions in 40 CFR 261.4(d) and (e) and any applicable state or local law or regulation. Bill of lading requiring shipper's certifications shall be signed by the Contractor.

#### 3.4 EPA ID NUMBER

The Contractor shall use the existing EPA Generator ID Number to be issued by the CO for this project.

#### 3.5 SPECIAL REQUIREMENTS FOR ASBESTOS WASTES (NOT APPLICABLE)

#### 3.6 WASTE MINIMIZATION

The Contractor shall minimize the generation of hazardous waste to the maximum extent practicable. The Contractor shall take all necessary precautions to avoid mixing clean and contaminated wastes. The Contractor shall identify and evaluate recycling and reclamation options as alternatives to land disposal. Requirements of 40 CFR 266 shall apply to: hazardous wastes recycled in a manner constituting disposal and hazardous waste burned for energy recovery.

#### 3.7 RECORD KEEPING

The Contractor shall be responsible for maintaining copies of all documentation and records to support information provided to the CO including, but not limited to, manifests, certificates of disposal/destruction, shipping documents, exception reports, annual reports, and biennial reports.

### 3.8 SPILL RESPONSE

The Contractor shall respond to any spill of hazardous materials or hazardous waste that are in the custody or care of the Contractor pursuant to this contract. Any direction from the CO concerning a spill or release shall not be considered a change under the contract. The Contractor shall comply with all applicable requirements of Federal, state, or local laws or regulations regarding any spill incident.

### 3.9 EMERGENCY CONTACTS

The Contractor shall be responsible for complying with the emergency contact provisions in 49 CFR 172.604. Whenever the Contractor ships hazardous materials, the Contractor shall provide a 24-hour emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. The phone must be monitored on a 24-hour basis at all times when the hazardous materials are in transportation including during storage incidental to transportation. The Contractor shall ensure that information regarding this emergency contact and phone number is placed on all hazardous materials shipping documents. The Contractor shall designate an emergency coordinator and post the following information at areas in which hazardous wastes are managed:

- a. The name of the emergency coordinator;
- b. Phone number through which the emergency coordinator can be contacted on a 24-hour basis;
- c. The telephone number of the local fire department; and
- d. The location of fire extinguishers and spill control materials.

Attachment 02120-A  
SAMPLE OFFSITE POLICY COMPLIANCE CERTIFICATION MEMORANDUM

Project/Contract #: \_\_\_\_\_

Waste Stream: \_\_\_\_\_

Primary TSD Facility, EPA ID # and Location: \_\_\_\_\_

Alter. TSD Facility, EPA ID # and Location: \_\_\_\_\_

EPA Region	Primary Contact	Secondary Contact
10	(206) 553-6646	(206) 553-1061

EPA representative contacted: \_\_\_\_\_

EPA representative phone number: \_\_\_\_\_

Date contacted: \_\_\_\_\_

Comment: \_\_\_\_\_

The above EPA representative was contacted on \_\_\_\_\_. As of that date the above sites were considered acceptable in accordance with the Offsite Policy in 40 CFR 300.440.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Phone number: \_\_\_\_\_

**END OF SECTION**

## **SECTION 02145**

### **TEMPORARY LNAPL STORAGE TANKS**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**

NFPA 30	Flammable and Combustible Liquids Code
NFPA 30A	Automobile and Marine Service Station Code
NFPA 70	National Electrical Code

##### **THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)**

SSPC SP 6	Commercial Blast Cleaning
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##### **STEEL TANK INSTITUTE (STI)**

STI R931	Double Wall AST Installation and Testing
STI F941	Thermally Insulated Above Ground Storage Tank

##### **UNDERWRITERS LABORATORIES (UL)**

UL 142	Steel Aboveground Tanks for Flammable and Combustible Liquids
UL 2085	Insulated Aboveground Tanks for Flammable and Combustible Liquids; Ballistics Protection

##### **UNIFORM FIRE CODE (UFC)**

UFC Article 52 and 79	Flammable and Combustible Liquids
UFC 7901.4	Tank Grounding and Safety
UFC 7901.11.10	Tank and Piping Testing
UFC 7902.1.8.2.1	Tank Design, Fabrication and Construction

UFC 7902.1.11	Vent Sizing
UFC 7902.2.6	Emergency Venting
UFC Appendix II-F	Ballistics Protection

## 1.2 SYSTEM DESCRIPTION

This section describes specifications and performance requirements for two aboveground storage tanks (ASTs) that will be used to store liquids recovered by a light non-aqueous phase liquid (LNAPL) collection system. The Contractor shall furnish all materials, tools, equipment, labor, and supervision to accomplish the work described in this section. In summary, the Contractor shall install two identical 1,100-gallon (4,200-liter) capacity secondarily contained ASTs at the LNAPL equipment storage pad shown on the Drawings. The two ASTs shall be constructed from steel, be secondarily contained, and be listed as both a “Protected” and a “Fire-Resistant” AST by UL 2085.

## 1.3 GENERAL REQUIREMENTS

### 1.3.1 Standard Product

Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products, which are of a similar material, design and workmanship and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. The standard products shall have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The 2-year use shall include applications of equipment and materials under similar circumstances and of similar size. The 2 years experience shall be satisfactorily completed by a product, which has been sold or is offered for sale on the commercial market through advertisements, manufacturer’s catalogs, or brochures. Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation, for not less than 6,000 hours exclusive of the manufacturer’s factory tests, can be shown. Products shall be supported by a service organization. System components shall be environmentally suitable for the indicated locations. Materials and equipment shall be supported by a service organization that is located within 200 miles (320 kilometers) of the Tongue Point Landfill site (Site).

### 1.3.2 Nameplates

Major equipment items such as the storage tank shall have the manufacturer’s name, address, type or style, model or serial number, and catalog number on a plate secured to the item of equipment.

### 1.3.3 Permitting

Contractor shall complete applicable permit(s) with the Astoria Fire Department and/or the Office of the State of Oregon Fire Marshall. If site conditions or design requirements



conflict with permitting requirements Contractor shall advise the Contracting Officer (CO) of any discrepancy before performing any work.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

Parts shall be pre-assembled to the largest extent possible, compatible with transportation limitations and equipment protection considerations. Field assembly, if any, shall require merely bolting together of match-marked components. Equipment shall be protected against damage during shipping. Flange faces or threaded opening shall be protected from damage. All openings shall be covered to prevent entrance of dirt, water and debris. Finished iron or steel surfaces shall be properly protected to prevent rust and corrosion. All equipment delivered and placed in storage shall be stored with protection from the weather (humidity and temperature), dirt and dust, and other contaminants. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and until the units and equipment are ready for operation. Proper protection and care of material before, during, and after installation shall be the Contractor's responsibility. Any materials found to be damaged shall be replaced at the Contractor's expense. During installation, piping and similar openings shall be capped to keep out dirt and other foreign matter.

#### 1.5 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-13 Certificates; GA

The Contractor shall submit certificates and testing reports that indicate requirements specified in PART 2 and Section 3.2 have been fulfilled.

#### 1.6 PROJECT/SITE CONDITIONS

The Contractor shall become familiar with details of the work, verify dimensions in the field, and advise the CO of any discrepancy before performing any work.

### **PART 2 PRODUCTS**

#### 2.1 SECONDARILY CONTAINED LNAPL STORAGE TANKS

Two 1,100-gallon-capacity (4,200-liter) ASTs shall be used to store LNAPL collected from the Site. The ASTs shall meet the requirements shown on the Drawings. The two ASTs shall be identical and include a primary storage tank with an integral fully enclosed secondary containment reservoir. Tank system shall be cylindrical and designed and manufactured for horizontal installation from steel. The tanks shall be provided with lifting lugs, which allow tank system relocation when empty. Two lifting eyes shall be located on

the centerline of the AST and be positioned so when in use the AST vent shall not be damaged. Tanks shall be custom mounted on the tank manufacturer's typical support skid for equivalent size skid mounted AST. Skid shall span the entire length of the tank and shall separate the tank from the ground surface by a minimum of 4 inches (100 millimeters [mm]).

Tank shall be constructed of double-wall steel in accordance with NFPA 30, NFPA 30A, and UL 2085 so that it is listed as both a "protected" and a "Fire-Resistant" AST. Both the primary and secondary storage tank walls shall be constructed from steel. Primary storage tank shall be constructed of single-wall steel in accordance with UL 142. Containment reservoir shall be single-wall steel conforming to UL 142. The interstitial space between the storage tank and the containment reservoir shall be filled with a 2-hour fire rated inhibitor and insulation in accordance with UL 2085. Tank system shall bear the UL 2085 label. The containment reservoir shall be provided with a 2-in (5-centimeter [cm]) min access port to allow visual inspection of the secondary containment. The overall height of the tanks shall be less than 70 inches (180 cm) to allow for easy access for connections to the LNAPL collection system. ACE Tank of Seattle, Washington (800-426-2880) model AC01100U2G1 Fireguard with skids or equivalent.

#### 2.1.1 Tank Piping Penetrations

At a minimum, the number and size of tank piping penetrations shall be provided as indicated on the Drawings. Pipe connections to the tanks shall be through factory fabricated double tapered female National Pipe Thread (NPT) couplings. A summary of fittings required and their minimum size is as follows:

- a. 2-inch NPT for Tank Full Shut Off
- b. 2 or 4-inch (10 cm) NPT for Fluid discharge into AST from LNAPL recovery system
- c. 6-inch (15 cm) NPT for Emergency vent
- d. 2-inch (5 cm) minimum NPT for combination free vent and flame arrestor
- e. 2-inch (5 cm) NPT for monitoring of secondary containment annular space
- f. 4-inch (10 cm) NPT for Analog gauge
- g. 4-inch (10 cm) NPT for manual tank gauging
- h. 4-inch (10 cm) NPT for removal of collected fluids

#### 2.1.2 Tank Atmospheric Venting

Each tank shall be provided with two vents in accordance with UFC Sec. 7902.1.11, NFPA 30, NFPA 30A, and UL 142. The vents shall be suitable for use with combustible liquid and the capacity of the AST. The ASTs shall have two vents, one atmospheric vent and one emergency vent. The atmospheric vent shall be continually open to ambient pressures. The emergency vent shall serve as pressure-relief and connect to a 6-inch (15 cm) NPT fitting in the AST. The emergency vent shall relieve excessive internal pressure caused by exposure to fires per UFC Sec. 7902.2.6 and be in a sealed position when the pressure inside the AST is less than atmospheric. The atmospheric vent pipe sizing shall be as indicated on the Drawings and not less than 2-inches (32 mm). The vents shall not allow the weather elements enter the AST.

### 2.1.3 Tank Exterior Protective Coating

Tank exterior shall be provided with a white exterior protective coating on the top and sides to resist weather and to reflect sunlight. Tank shall be sandblasted to SSPC-SP6 criteria and primed with 1 coat epoxy at 3 to 5 mils (76 to 127 mm) thick and 1 topcoat of urethane at 2 to 3 mils (50 to 76 micron) thick. Total dry-film thickness (TDFT) of 5 to 8 mils (127 to 203 micron). Ace Tank 3A or equivalent.

### 2.1.4 Tank Interior Protective Coating

Tank interior shall be provided with a protective coating 3 to 5 mils (76 to 127 micron) thick that is compatible with diesel fuel and motor oil.

### 2.1.5 Nameplates

Parts and equipment specified herein shall have an attached nameplate to list the manufacturer's name, address, component type or style, model or serial number, catalog number, capacity in U.S. gallons, the year of construction, and the tank construction standard (UL 142/2085). Plates shall be durable and legible throughout equipment life and made of 304 stainless steel. Plates shall be fixed in a prominent location on the equipment.

## 2.2 STICK GAUGE

Each tank shall be provided with 2 stick gauges graduated in one-hundredths of a foot. Stick gauge shall be of wood and treated after graduating to prevent swelling or damage from the recovered LNAPL being stored. Sticks shall be of sufficient length to fully enter the tank.

## 2.3 ANALOG TANK GAUGE

Each storage tank shall be provided with an automatic analog direct reading gauge, which is directly mounted to the top of the tank cover through a 2-inch tank adaptor. The gauge shall be a level sensing, mechanically actuated device, which provides the necessary readout in a sealed cap. The instrument shall be calibrated in gallons and have a range between 0 and 1,100 gallons. Gauge shall be accurate to plus or minus 25 gallons (100 liters) and be capable of measuring the liquid level over the full range of a tank's height. Gauge shall have vapor tight seals to prevent condensate from fogging the viewing window. The gauge head shall be a minimum of 6 inches in diameter, constructed from stainless steel, and mounted vertically. Pneumercator Liquid Level Control Systems Direct Reading Gauge supplied by ACE Tank or equivalent.

## 2.4 TANK CALIBRATION CHARTS

Each tank shall be furnished with 2 copies of calibrated charts, which indicate the liquid contents in gallons for each 0.01 feet (3 mm) of tank depth.

## **PART 3 EXECUTION**

### **3.1 GENERAL INSTALLATION REQUIREMENTS**

Two 1,100-gallon-capacity (4,164-liters)AST shall be installed by the Contractor on the gravel LNAPL collection/storage system pad. To prevent unwanted movement, each AST shall be individually secured to the gravel pad with wire rope connected to field fabricated tie downs in the ground surface. The Contractor shall also properly ground the ASTs via 1 ground rod as shown in the drawings, however use #2 gauge copper wire per the state electrical code and UFC Sec. 7901.4. The ASTs shall accommodate connection of one tank full shut off and one product influent line from the LNAPL collection system. The position of the LNAPL collection/storage system pad will change depending on the preload stockpile sequence. Therefore, two pads shall be required to avoid the preload stockpiles. Contractor shall move the two ASTs to the new pad location as required by the preload sequencing.

### **3.2 TESTS**

#### **3.2.1 Aboveground Storage Tank Tightness Tests**

A tightness test shall be performed on each aboveground storage tank. The tests shall be performed prior to making piping connections. Tests shall be capable of detecting a 0.1 milliliter per second (mL/s) (0.1 gram per hour [gph]) leak rate from any portion of the tank while accounting for effects of thermal expansion or contraction. Gauges used in the tightness tests shall have a scale with a maximum limit of 10 psig (69 kilo-Pascal [kPa]). The storage tank shall be pressurized with air to a maximum of 5 psig (35 kPa), but not less than 3 psi and monitored for a drop in pressure over a 2-hour period during which there shall be no drop in pressure in the tank greater than that allowed for pressure variations due to thermal effects (UFC Sec. 7901.11.10). This pressure shall be maintained and soapsuds or equivalent material applied to the exterior of the tank. While applying the soapsuds, the entire tank shall be visually inspected, including the bottom surfaces, for leaks (bubble formations). Leaks discovered during either the 2-hour waiting period or the soapsuds tests shall be repaired in accordance with manufacturer's instructions. The pneumatic test shall be performed again in the event a leak is discovered.

#### **3.2.2 Manufacturer's Tank Tests**

Following the tank tightness test, each storage tank shall be leak tested in accordance with the manufacturer's written test procedure if the manufacturer's test procedure is different from the tightness tests already performed. Any test failure shall require corrective action and retest.

## **END OF SECTION**

## **SECTION 02230**

### **CLEARING AND GRUBBING**

#### **PART 1 GENERAL**

##### **1.1 DEFINITIONS**

###### **1.1.1 Clearing**

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal or otherwise necessary to complete the work, including down timber, snags, brush, rock, boulders, loose rock piles and rubbish occurring in the areas to be cleared.

###### **1.1.2 Grubbing**

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas.

##### **1.2 SUBMITTALS**

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-18 Records

Materials Other Than Salable Timber; FIO.

Written permission to dispose of such products on private property shall be filed with the Contracting Officer (CO).

#### **PART 2 PRODUCTS (NOT USED)**

#### **PART 3 EXECUTION**

##### **3.1 CLEARING**

Trees, stumps, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Tree and brush roots shall be removed in areas to be cleared.

Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches (3.8 centimeters [cm]) or more in diameter and shall be trimmed of all branches the heights indicated or directed. Limbs and branches to be trimmed shall be neatly

cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches (3.8 cm) in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require. Clearing shall also include the removal and disposal of structures, rock, debris or rubbish that obtrude, encroach upon, or otherwise obstruct the work.

Remove loose rocks, boulders, or rock piles from the surface of the areas designated to be cleared on the Drawings. Place in the landfill in accordance with paragraph 3.8.2.2 of Section 02300 Earthwork. Remove rock and boulders and ancillary support structures to an elevation of 16 feet mean lower low water (MLLW) from the rock revetment area designated on the Drawings.

### 3.2 GRUBBING

Tree roots and exposed debris material to be grubbed that are not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed on the Drawings. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform to the original adjacent surface of the ground.

### 3.3 TREE REMOVAL (NOT USED)

### 3.4 DISPOSAL OF MATERIALS

#### 3.4.1 Salable Timber (Not Used)

#### 3.4.2 Material Disposal

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations shall be incorporated into the landfill area during subgrade preparation, except when otherwise directed in writing by the CO. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

Rubbish, refuse, rocks, boulders, and other non-vegetative debris shall be incorporated into the landfill area. The Contractor shall spread these items evenly within the onsite landfill area below the limits of the subgrade preparation shown on the Drawings and tractor-walk them into the ground.

Inert scrap metal encountered during clearing operations shall be disposed of in the landfill unless otherwise directed by the CO. Containers, junk cars, or other similar metallic items shall be checked for free liquids prior to disposal. Immediately notify the CO of the items prior to proceeding. If free liquids are encountered, these shall be drained, checked for hazardous constituents and properly disposed in an off-site disposal facility. Dispose of all hazardous constituents in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS. Larger pieces of inert scrap metal shall be cut into

pieces that would fit into a 5 cubic foot (0.14 cubic meter) box prior to disposal. All scrap metal disposed of in the landfill shall be placed in areas that are at least 2 feet (0.6 meters) below the subgrade for the Phase II cover system. Contact the CO to obtain information on these grades. Cohesionless fill materials as defined in Section 02300 EARTHWORK shall be placed and hand compacted around the scrap metal to reasonably minimize voids in the final disposition of the scrap metal to the satisfaction of the CO.

Logs, stumps, roots, brush, rotten wood, and other vegetative debris shall be chipped prior to onsite disposal. Chipping shall be done by machines that can grind debris into wood chips. Wood chips shall be no larger than 6 square inches and no thicker than 1/2 inch (1.3 cm). The Contractor shall spread wood chips evenly within the boundary of the on-site landfill and tractor-walk them into the ground.

**END OF SECTION**

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## **SECTION 02241**

### **BASE COURSE**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM C 88	(1999a) Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 127	(2001) Standard Test Method for Specific Gravity and Absorption of Course Aggregate
ASTM C 128	(1997) Standard Test Method for Specific Gravity and Absorption of Fine Aggregate
ASTM C 131	(1996) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	(1996a) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 75	(1997) Standard Practice for Sampling Aggregates
ASTM D 422	(1998) Standard Test Method for Particle-Size Analysis of Soils
ASTM D 1556	(2000) Standard Test Method for Density and Unit Weight of Soil In-Place by the Sand-Cone Method
ASTM D 1557	(2000) Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2,700 kN-m/m <sup>3</sup> ))
ASTM D 2167	(1994) Standard Test Method for Density and Unit Weight of Soil In-Place by the Rubber Balloon Method

ASTM D 4318 (2000) Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

ASTM E 11 (2001) Standard Specification for Wire-Cloth Sieves for Testing Purposes

## 1.2 EQUIPMENT

Equipment and compaction procedures will be subject to approval by the Contracting Officer (CO). The Contractor shall obtain written approval from the geosynthetic manufacturers for soil placement equipment and compaction procedures proposed for use above any geosynthetic layer.

## 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted according to Section 01330 SUBMITTAL PROCEDURES:

SD-09 Reports

Classification Determinations; GA.

Borrow soil classification test results.

SD-13 Certificates

Procurement of Borrow Material; GA.

The location, plan view and estimated available quantity, locations and logs of subsurface explorations, and laboratory test results for each aggregate base course source, unless procured from a commercial borrow source. If procured from a commercial borrow source, provide laboratory test results only.

Procurement of Borrow Materials; GA.

Laboratory test results showing that the borrow material is uncontaminated.

Procurement of Borrow Materials; GA.

Federal, state, and local permits required for the excavation and reclamation of all borrow sources, unless procurement from a commercial borrow source. If procured from a commercial borrow source, provide certificates indicating operation complies with applicable Federal, State, and local regulations.

## 1.4 DEFINITIONS

### 1.4.1 Aggregate Base Course

Aggregate base course (Base Course) as used herein is well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction.

### 1.4.2 Degree of Compaction

Degree of compaction required is expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 1557, abbreviated hereinafter as percent laboratory maximum dry density.

## 1.5 GENERAL

The work specified herein consists of the construction of a stabilized base course aggregate. The work shall be performed in accordance with this specification and shall conform to the lines, grades, notes and typical sections shown on the Drawings.

## 1.6 WEATHER LIMITATIONS

Base shall not be constructed when the atmospheric temperature is less than 35 degrees Fahrenheit (°F) [1.7 degrees Celsius (°C)] without approval of the CO. Base shall not be constructed on subgrades that are frozen or contain frost. If the temperature falls below 35 °F (1.7 °C) completed areas shall be protected against any detrimental effects of freezing.

## 1.7 PLANT, EQUIPMENT, MACHINES, AND TOOLS

### 1.7.1 General Requirements

Plant, equipment, machines, and tools used in the work shall be maintained in satisfactory working condition at all times. Other compacting equipment may be used in lieu of that specified, where it can be demonstrated that the results are equivalent. The equipment shall be adequate and have the capability of producing the results specified.

### 1.7.2 Sprinkling Equipment

Sprinkling equipment shall consist of tank trucks, pressure distributors, or other approved equipment designed to apply controlled quantities of water uniformly over variable widths of surface.

### 1.7.3 Straightedge

The Contractor shall furnish and maintain at the Site, in good condition, at least one 10-foot (3-meter) straight edge for use in the testing of the finished surface. Straightedge(s) shall be made available for Government use.

## 1.8 STOCKPILING MATERIALS

Materials, including approved material available from excavation and grading, shall be stockpiled in the manner and at locations designated. Before stockpiling of material, storage sites shall be cleared, and sloped to drain. Materials obtained from different sources shall be stockpiled separately. Submittals for imported material shall be approved prior to delivery to the site.

## 1.9 SAMPLING AND TESTING

### 1.9.1 General Requirements

Sampling and testing shall be performed on materials listed in PART 2 by an approved commercial testing laboratory.

### 1.9.2 Test Results

Results shall verify that materials comply with this specification. When deficiencies are found, the initial analysis shall be repeated and the material already placed shall be retested to determine the extent of unacceptable material. All in-place unacceptable material shall be replaced or modified to meet specification requirements.

### 1.9.3 Sampling

Aggregate samples for laboratory tests shall be taken in accordance with ASTM D 75.

### 1.9.4 Sieve Analysis

Before starting work, at least one sample of material shall be tested in accordance with ASTM C 136 and ASTM D 422 on sieves conforming to ASTM E 11.

### 1.9.5 Liquid Limit and Plasticity Index

Liquid limit and plasticity index shall be in accordance with ASTM D 4318. One test on the binder material as requested by the CO.

### 1.9.6 Laboratory Density

Tests shall provide a moisture-density relationship for the stabilized base course aggregate. Tests shall be conducted in accordance with ASTM D 1557.

### 1.9.7 Wear Tests

Wear tests shall be performed in accordance with ASTM C 131.

### 1.9.8 Sampling and Testing During Construction

Quality control sampling and testing during construction shall be performed as specified in Section 01451 CONTRACTOR QUALITY CONTROL.

### 1.9.9 Frequency

A minimum of one test shall be performed for every 1,000 cubic yard (cy) (765 cubic meters) of earthen material.

## **PART 2 PRODUCTS**

### 2.1 MATERIALS

#### 2.1.1 Aggregates

Aggregates shall consist of clean uncontaminated, crushed gravel, angular sand, or other approved materials. Aggregates shall be durable and sound, free from lumps of clay, organic matter, objectionable coatings, and other foreign material. Material retained on a No. 4 sieve (4.75 millimeter [mm]) shall be known as coarse aggregate and that passing the No. 4 sieve (4.75 mm) shall be known as binder material.

##### 2.1.1.1 Coarse Aggregate

Coarse aggregates, consisting of angular fragments of uniform density and quality, shall have a percentage of wear not to exceed 50 percent after 500 revolutions when tested in accordance with ASTM C 131. The coarse aggregate shall not have a loss greater than 15 percent weighted average at five cycles when tested for soundness in magnesium sulfate in accordance with ASTM C 88. The amount of flat and elongated particles shall not exceed 30 percent. A flat particle is one having a ratio of width to thickness greater than 3, and an elongated particle is one having a ratio of length to width greater than 3.

- a. Crushed Gravel: Crushed gravel retained on each sieve specified shall contain at least 50 percent by weight of crushed pieces having two or more freshly fractured faces with the area of each face being at least equal to 75 percent of the smallest midsection area of the piece. When two fractures are adjacent, the angle between the planes of the fractures must be at least 30 degrees to count as two fractured faces.

### 2.1.1.2 Binder Material

Binder material shall consist of screenings, angular sand, or other finely divided mineral matter processed or naturally combined with the coarse aggregate. Liquid-limit and plasticity-index requirements shall apply to any component that is blended to meet the required gradation and shall also apply to the completed base course. The portion of any component or of the completed base course passing the No. 40 sieve (0.42 mm) shall be either nonplastic or have a liquid limit not greater than 25 and a plasticity index not greater than 5.

### 2.1.2 Gradation

Requirements for gradation specified shall apply to the completed base course. The aggregates shall be continuously graded within the limits specified in Table 02241-1 STABILIZED BASE COURSE AGGREGATE GRADATION.

**Table 02241-1**  
**STABILIZED BASE COURSE AGGREGATE GRADATION**

<b>Sieve Designation</b>	<b>Millimeters</b>	<b>Percentage by Weight Passing Square-Mesh Sieve</b>
2-inch	50.8	100
1-inch	25.4	60-100
1/2-inch	12.7	30-65
No. 4	4.75	20-50
No. 10	2	15-40
No. 40	0.42	5-25
No. 200	0.074	0-10

NOTE: The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves are subject to appropriate correction in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravities are used.

## **PART 3 EXECUTION**

### 3.1 GENERAL REQUIREMENTS

When the stabilized base course aggregate is constructed in more than one layer, the previously constructed layer shall be cleaned of loose and foreign matter by sweeping with power sweepers or power brooms, except that hand brooms may be used in areas where power cleaning is not practicable. Adequate drainage shall be provided during the entire period of construction to prevent water from collecting or standing on the area to be stabilized. Line and grade stakes shall be

provided as necessary for control. Grade stakes shall be in lines parallel to the centerline of the area under construction and suitably spaced for string lining.

### 3.2 PREPARATION OF UNDERLYING COURSE

#### 3.2.1 General Requirements

Before constructing stabilized base course aggregate, the previously constructed underlying course shall be cleaned of foreign substances. Surface of underlying course shall meet the specified compaction and surface tolerances. Subgrade shall conform to Section 02300 EARTHWORK. Ruts or soft, yielding spots that may appear in the underlying course, areas having inadequate compaction, and deviations of the surface from requirements specified shall be corrected. Finished underlying course shall not be disturbed by traffic or other operations and shall be maintained in a satisfactory condition until the stabilized base course aggregate is placed. The underlying course shall be sufficiently crowned in the center of the road section to allow water to drain to either side of the roadway. No low spots, undraining or puddle areas shall be present at the time that base course aggregate is placed. The woven reinforcement geotextile for access road construction shall be installed below the first layer of stabilized base course aggregate as shown on the Drawings.

#### 3.2.2 Grade Control

Underlying material shall be excavated to sufficient depth for the required stabilized base course thickness so that the finished stabilized base course with the subsequent surface course will meet the fixed grade. Finished and completed base course shall conform to the lines, grades, cross section, and dimensions indicated.

### 3.3 INSTALLATION

#### 3.3.1 Mixing and Placing

Materials shall be mixed and placed in such a manner as to obtain uniformity of the stabilized base course aggregate material and at a uniform optimum water content for compaction. The Contractor shall make such adjustments in mixing or placing procedures or in equipment to obtain the true grades, to minimize segregation and degradation, to reduce or accelerate loss or increase of water, and to insure a satisfactory base course.

#### 3.3.2 Edges of Base Course

Approved material shall be placed along edges of stabilized base course aggregate in such quantities as will compact to the thickness of the course being constructed, or to the thickness of each layer in a multiple layer course. Allow in each operation at least a 1-foot (0.3-m) width of the shoulder to be rolled and compacted simultaneously with rolling and compacting of each layer of base course.

### 3.3.3 Compaction

Each layer of stabilized base course aggregate shall be compacted. Water content shall be maintained within 2 percent of optimum moisture content determined in accordance with ASTM D 1557 during placement. Density of compacted mixture shall be at least 95 percent of laboratory maximum density as determined in accordance with ASTM D 1557. Rolling shall begin at the outside edge of the surface and proceed to the center, overlapping on successive trips at least one-half the width of the roller. Alternate trips of the roller shall be slightly different lengths. Speed of the roller shall be such that displacement of the aggregate does not occur. Areas inaccessible to the rollers shall be compacted with mechanical tampers, and shall be shaped and finished by hand methods.

### 3.3.4 Layer Thickness

Compacted thickness of the stabilized base course aggregate shall be as indicated on the Drawings.

### 3.3.5 Finishing

The surface of the top layer shall be finished to the grade and cross section shown on the Drawings. Finished surface shall be of uniform texture. Light blading during compaction may be necessary for the finished surface to conform to the lines, grades, and cross sections. Should the surface for any reason become rough, corrugated, uneven in texture, or traffic marked prior to completion, such unsatisfactory portion shall be scarified, reworked, recompact, or replaced as directed by the CO.

#### 3.3.5.1 Smoothness

Surface of each layer shall show no deviations in excess of 3/8 inch (0.95 cm) when tested with the 10-foot (3-m) straightedge. Deviations exceeding this amount shall be corrected by removing material and replacing with new material, or by reworking existing material and compacting, as directed.

#### 3.3.5.2 Thickness Control

Compacted thickness of the stabilized base course shall be within 3/4 inch (1.9 cm) of the thickness indicated. Where the measured thickness is more than 3/4 inch (1.9 cm) deficient, such areas shall be corrected by scarifying, adding new material of proper gradation, reblading, and recompact as directed. Where the measured thickness is more than 3/4 inch (1.9 cm) thicker than indicated, the course shall be considered as conforming to the specified thickness requirements.



### 3.4 FIELD QUALITY CONTROL

#### 3.4.1 Field Density

Field in-place density shall be determined in accordance with ASTM D 1556 or ASTM D 2167.

#### 3.4.2 Smoothness

Measurements for deviation from grade and cross section shown shall be taken in successive positions parallel to the road centerline with a 10-foot (3-meter) straightedge. Measurements shall also be taken perpendicular to the road centerline at 50-foot (15-m) intervals.

#### 3.4.3 Thickness

The completed thickness of the base course shall be within 3/4 inch (1.9 cm) of the thickness indicated. The thickness of the base course shall be measured at intervals providing at least one measurement for at least each 500 square yards (418 square m) of base course. The depth measurement shall be made by test holes at least 3 inches (8 cm) in diameter. Where the measured thickness of the base course is more than 3/4 inch (1.9 cm) deficient, such areas shall be corrected as described in paragraph 3.3.5.2 Thickness Control. Where the measured thickness of the base course is 3/4 inch (1.9 cm) more than indicated, it will be considered as conforming with the requirements for thicknesses provided the surface of the base course is within 3/4 inch (1.9 cm) of established grade. The average job thickness shall be the average of the job measurements as specified above but within 1/2 inch (1.3 cm) of the thickness indicated.

#### 3.4.4 Gradation

One per 1,000 cubic yards (765 cubic meters) stockpiled or in-place source material. Gradation of stabilized base course aggregate shall be determined in accordance with ASTM C 136 and ASTM D 422.

### 3.5 TRAFFIC

Completed portions of the area may be opened to traffic, provided there is no marring or distorting of the surface by the traffic. Heavy equipment shall not be permitted except when necessary for construction, and then the area shall be protected against marring or damage to the completed work.

### 3.6 MAINTENANCE

Marring or damage to the stabilized base course aggregate may occur during the contract. The stabilized base course aggregate shall be maintained within 1/2 inch (1.3 cm) when tested with the 10-foot (3-m) straightedge during the course of the contract and until final acceptance.

Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact.

### 3.7 DISPOSAL OF UNSATISFACTORY MATERIALS

Material that is removed for the required correction of defective areas and waste material and debris shall be disposed of off site or in the landfill at no additional cost to the Government.

**END OF SECTION**

## **SECTION 02300**

### **EARTHWORK**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

#### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM C 136	(1996a) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	(1998) Standard Test Method for Particle-Size Analysis of Soils
ASTM D 1140	(2000) Standard Test Methods for Amount of Material in Soils Finer than the No. 200 (75- $\mu$ m) Sieve
ASTM D 1556	(2000) Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(2000) Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2,700 kN-m/m <sup>3</sup> .)
ASTM D 2167	(1994) Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2487	(1998) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996e1) Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 2937	(2000) Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method
ASTM D 3017	(1996e1) Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(2000) Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## 1.2 DEFINITIONS

### 1.2.1 Satisfactory Imported Materials

Satisfactory materials shall consist of any materials classified by ASTM D 2487 as SM, SW-SM, SC, SW-SC, SP-SM, SP-SC, GW, GP, and GW-GM unless otherwise specified. Satisfactory materials for grading shall be comprised of onsite material, except for fill material for pavements which shall be comprised of crushed gravel specified in Section 02241 BASE COURSE.

### 1.2.2 Unsatisfactory Imported Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material otherwise classified as satisfactory material which contains root and other organic matter or frozen material. The Contracting Officer (CO) shall be notified of any contaminated materials.

### 1.2.3 Native Backfill

Materials present on site that are suitable for backfill and contain no waste or debris.

### 1.2.4 Degree of Compaction

Degree of compaction required is expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 1557, abbreviated as a percent of laboratory maximum dry density. Maximum dry density shall be determined in accordance with ASTM D 1557 for the soils testing specified below.

## 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### SD-09 Reports

Testing; GA.

Within 24 hours of the conclusion of physical tests, 5 copies of the test results and an indication of pass/fail condition. Include calibration curves and results of calibration tests.

### SD-13 Certificates

The location, plan view and estimated available quantity, locations and logs of subsurface explorations, and laboratory test results for each aggregate base course source, unless

procured from a commercial borrow source. If procured from a commercial borrow source, provide laboratory test results only.

Procurement of Borrow Materials; GA.

Laboratory test result showing that the borrow material is uncontaminated.

Procurement of Borrow Materials; GA.

Federal, state, and local permits required for the excavation and reclamation of all borrow sources unless procurement from a commercial borrow source. If procured from a commercial borrow source, provide certificates indicating operation complies with applicable Federal, State, and local regulations.

Testing; GA.

Qualifications and validation of the commercial testing laboratory or Contractor's testing facilities. Refer to Section 01451 CONTRACTOR QUALITY CONTROL for requirements.

SD-18 Records

Earthwork; GA.

Notification of encountering in-situ rock in the project, if actually encountered. Advance notice on the opening of excavation or borrow areas.

#### 1.4 SUBSURFACE DATA

Selected subsurface soil boring logs are included as an Appendix to Section 01115 SITE DESCRIPTION. These data represent the best subsurface information available; however, variations may exist in the subsurface between boring locations. Documents that include more comprehensive information on the results of subsurface investigations listed in Section 01115 SITE DESCRIPTION can be found in reports for the Tongue Point Landfill site at the Astoria Public Library, 450 10<sup>th</sup> Street, Astoria, Oregon 97103.

#### 1.5 CLASSIFICATION OF EXCAVATION

No consideration will be given to the nature of the earthen materials encountered, and all excavation in soils will be designated as unclassified excavation. Excavation in waste will not be classified and will be incorporated back into the landfill grading and will be covered with a minimum of 6 inches (15 cm) of native backfill material.

#### 1.6 UTILIZATION OF EXCAVATED MATERIALS

Materials removed from excavations including nonhazardous solid waste materials shall be incorporated into the land fill subgrade. Earthen material removed from excavations shall be used, insofar as practicable, for subgrades, shoulders, bedding (as backfill), and for similar

purposes. No earthen excavated material shall be wasted without specific written authorization. Material authorized to be discarded shall be disposed of in the landfill. No excavated material shall be disposed of to obstruct the flow of any stream, cause unauthorized diversion of water to Federal or State waters, endanger a partly finished structure, endanger natural habitat, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

## **PART 2 PRODUCTS**

### **2.1 PRELOAD FILL**

Fill material to be used for both preloading of the landfill during Phase I construction (this Contract), and restoration of excavated landfill slopes during Phase II construction (not part of this Contract) shall be a silty or clayey inert sand/gravel mixture, free from organic matter, and conforming to the gradation specified in Table 02300-1.

**Table 02300-1  
PRELOAD FILL GRADATION**

<b>Sieve Designation</b>	<b>Millimeter</b>	<b>Percentage by Weight Passing Square-Mesh Sieve<sup>a</sup></b>
1-inch	25.4	100
No. 4	4.75	90-100
No. 200	0.074	20-50

<sup>a</sup>The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves are subject to appropriate correction in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravities are used.

### **2.2 QUARRY SPALLS**

1. Quarry spalls shall consist of subangular stone meeting the requirements described in ODOT Standard Specifications. Quarry spalls shall conform to the gradation specified in Table 02300-2.

**Table 02300-2  
QUARRY SPALL GRADATION DESIGNATION**

<b>Sieve Designation</b>	<b>Millimeter</b>	<b>Percentage by Weight Passing Square-Mesh Sieve<sup>a</sup></b>
8-inch	203	100
6-inch	152	80 max.
3-inch	76	40 max.
3/4-inch	19	10 max.

<sup>a</sup>The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves are subject to appropriate correction in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravities are used.

### 2.3 SAND/GRAVEL LAYER

Fill material to be used for the 4-inch sand/gravel with a maximum size of 1-inch layer placed at the base of the preload fill shall consist of sand and/or gravel material imported from off site meeting the definition of satisfactory imported material and placed as indicated in the Drawings.

### 2.4 GENERAL FILL

General fill shall consist of clean, dominantly earthen material free of deleterious items and containing no more than 5 percent visible organics or other materials as approved by CO.

### 2.5 CRUSHED ROCK

The subgrade material under the utility pad conforming to the gradation specified in Table 02300-3.

**Table 02300-3  
CRUSHED ROCK GRADATION**

<b>Particle Size Test, ASTM D-422</b>		
<b>Sieve Designation</b>	<b>Millimeter</b>	<b>Percentage by Weight Passing Square Mesh Sieve</b>
2 in.	50.8	100
1 in.	25.4	50-100
No. 4	4.75	5-32
No. 40	0.42	0-20
No. 200	0.074	0-10

<sup>a</sup>The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves are subject to appropriate correction in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravities are used.

## 2.6 STABILIZED BASE COURSE AGGREGATE

Stabilized base course aggregate for construction of the access roads shall consist of the material specified in Section 02241 BASE COURSE.

## PART 3 EXECUTION

### 3.1 GENERAL EXCAVATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated on the Drawings and as specified. Grading shall be in conformity with the typical sections shown and the tolerances specified in Paragraph 3.9 FINISHING. Satisfactory excavated materials shall be used for fill in the subgrade preparation within the limits of the work.

#### 3.1.1 Ditches, Gutters, and Channel Changes

Excavation of ditches, gutters, and channel changes shall be accomplished by cutting accurately to the cross sections, grades, and elevations indicated or otherwise shown on the Drawings. Ditches shall not be excavated below the grades shown. Excessive open ditch excavation shall be backfilled with satisfactory, thoroughly compacted, material or with suitable stone or cobble to the grades shown. Material excavated shall be disposed of in the landfill, except that in no case shall material be deposited less than 4 feet (1.2 meters) from the edge of a ditch.

#### 3.1.2 Drainage Structures

Excavations shall be made to the lines, grades, and elevations shown on the Drawings, or as directed by the CO.

### 3.2 SELECTION OF BORROW MATERIAL

Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Borrow material shall be obtained from approved borrow sources, either selected by the Contractor or within the limits of the project site. Unless otherwise provided in the contract, the Contractor shall obtain from the individual owners the right to procure material, pay royalties and other charges involved, and bear the expense of developing the sources, including rights-of-way for hauling. Borrow material from approved sources on Government-controlled land may be obtained without payment of royalties. Unless specifically provided, no borrow shall be obtained within the limits of the project site without prior written approval. Work involved for necessary clearing, grubbing, and satisfactory drainage of borrow pits on site and the disposal of debris thereon shall be included in Section 02230 CLEARING AND GRUBBING. Such costs associated with development of off-site borrow sources shall be considered related operations to the borrow excavation.



### 3.3 OPENING AND DRAINAGE OF EXCAVATION AND BORROW PITS

The Contractor shall notify the CO sufficiently in advance of the opening of any excavation or borrow pit to permit elevations and measurements of the undisturbed ground surface to be taken. Except as otherwise permitted, borrow pits and other excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated spoil areas or otherwise disposed of as directed by the CO. Borrow pits shall be neatly trimmed and drained after the excavation is completed. The Contractor shall ensure that excavation of any area, operation of borrow pits, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

### 3.4 GRADING AREAS

Where indicated, work will be divided into grading areas within which satisfactory excavated material shall be placed in embankments, fills, and required backfills. The Contractor shall not haul satisfactory material excavated in one grading area to another grading area except when so directed in writing.

### 3.5 BACKFILL

Backfill adjacent to any and all types of structures shall be placed and compacted to at least 90 percent laboratory-determined maximum dry density for cohesive materials or 95 percent laboratory-determined maximum dry density for cohesionless materials except as otherwise specified for a given backfill purpose. Ground surface on which backfill is to be placed shall be prepared as specified in Paragraph 3.6 PREPARATION OF GROUND SURFACE FOR EMBANKMENTS. Compaction requirements for backfill materials shall also conform to the applicable portions of Paragraphs 3.6 PREPARATION OF GROUND SURFACE FOR EMBANKMENTS, AND PRELOAD FILLS and 3.8 SUBGRADE PREPARATION; and Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. Compaction for open area fills shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

### 3.6 PREPARATION OF GROUND SURFACE FOR EMBANKMENTS AND PRELOAD FILLS

#### 3.6.1 General Requirements

Ground surfaces on which fill is to be placed shall be regraded to the limits and elevations shown on the Drawings or specified herein and compacted. Compaction shall be accomplished by a minimum of 3 passes of sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Compaction equipment must be acceptable to the CO prior to using it on the Site. The prepared ground surface shall be scarified and moistened or aerated as required just prior to placement of embankment materials. For the preload fill areas, these requirements apply to the subgrade preparation prior to placement of the 4-inch (10-cm) sand/gravel layer.

### 3.7 FILL PLACEMENT

#### 3.7.1 Earth Embankment

Earth embankments shall be constructed from satisfactory materials free of organic or frozen material, rocks with any dimension greater than 1 inch (2.5 cm), refuse, and other deleterious material. The material shall be placed in successive horizontal layers of loose material not more than 12 inches (30 cm) in depth. Each layer shall be spread uniformly on a soil surface that has been moistened or aerated as necessary, and scarified or otherwise broken up so that the fill will bond with the surface on which it is placed. After spreading, each layer shall be compacted by using a minimum of 3 passes or until firm surface is achieved. Compaction requirements for the upper portion of earth embankments forming subgrade for pavements shall be identical with those requirements specified in Paragraph 3.8 SUBGRADE PREPARATION. Compaction shall be accomplished by 10-ton (8.9-metric ton) vibrating steel-drum roller or other equipment approved by the CO.

#### 3.7.2 Access Road Construction

Stabilized aggregate base course, as specified in Section 02241 BASE COURSE, shall be placed in two successive horizontal layers of 4 inches (10 cm) in compacted final depth for construction of aggregate access roads leading into the landfill. The constructed access road shall be 8 inches (20 cm) in final depth and meet other requirements of this Section and dimensions shown on the Drawings.

#### 3.7.3 Stabilized Entrance Road Construction Quarry Spalls

- a. Quarry spalls shall be placed in loose lifts having a minimum thickness of 1 foot (0.3 meters). Loose placement techniques shall prevent material segregation, layering, or lines of discontinuity. The maximum size of any void shall not exceed 6 inches (15 cm) in any direction.
- b. The material shall be placed in a manner that will ensure it attains its specified thickness in one operation. Material shall be placed in a single layer in excess of the required thickness and spread by advancing the material to achieve the required thickness. When placing, care shall be used to avoid disturbing the underlying material.
- c. The tolerance allowed for the finished surface shall be +6/-3 inches (+15/-7.5 cm).
- d. Tolerance thicknesses shall be measured using a 12-inch (0.3-meter) diameter disk at the base of a survey rod. Stones located at the limits of the tolerances indicated shall not be continuous in any direction for more than 10 feet (3 meters) and/or a total area of 10 percent of the material surface.

### 3.7.4 Preload Fill Construction

- a. Preload fills shall be constructed of imported material meeting the requirements specified in paragraph 2.1 PRELOAD FILL and Table 02300-1.
- b. The material shall be placed in successive horizontal layers of loose material not more than 12 inches (30 cm) in depth. The material shall be evenly graded and compacted using a minimum of 3 passes of a Caterpillar Model D6 bulldozer or other equipment approved by the CO.
- c. Preloading/slope restoration fill, as specified in this Section, shall be imported as necessary until a total in-place, compacted volume reaches 12,000 cubic yards (9,175 cubic meters).
- d. Preload fills shall be constructed in the sequence and the directions shown on the Drawings.
- e. A layer of sacrificial separation geotextile, as specified in Section 02373, shall be placed over the footprint of each preload fill stockpile prior to stockpile construction.
- f. Each preload fill stockpile shall be constructed at the locations shown on the Drawings. Drawings show the typical limit of side slopes. The side slopes shall not be steeper than 1.5H:1V.
- g. The Contractor shall protect existing groundwater monitoring wells and LNAPL collection system from damage during preload fill placement.
- h. The Contractor shall install settlement plates for the monitoring of vertical landfill in the preload fills settlement as specified in Section 01720 FIELD ENGINEERING.
- i. The completion of each individual preloading event will be evaluated by the CO based on an assessment of actual settlement of each preloaded section. A duration of 40 to 60 calendar days is anticipated for each event. The Contractor shall move each preload section to its next location upon approval by the CO.
- j. The stockpile for the final preload sequence (preload fill stockpile No. 5) shall remain in place for Phase II site work which is not part of this Contract.

## 3.8 SUBGRADE PREPARATION

### 3.8.1 Construction

Subgrade for construction other than earth embankments and preload fill shall be shaped to line, grade, and cross section, and compacted as specified below. Low areas resulting from removal of soft material as evidenced by pumping or rutting in the opinion of the CO or excavation of rock shall be brought up to the required grade with materials meeting the soil classifications GW, SW, SW-SM, SW-SC, SP-SM, or SP-SC unless otherwise specified.

Materials shall be obtained from on-site, if available, and shall be at a moisture content amenable to compaction. The entire subgrade shall be shaped to line, grade, and cross section and compacted as specified. After rolling, the surface of the subgrade for roadways shall not show deviations greater than 1 inch (2.5 cm) when tested with a 10-foot (3-meter) straightedge applied both parallel and at right angles to the centerline of the area. The elevation of the finish subgrade shall not vary more than 0.1 foot (3 cm) from the established grade and cross section.

### 3.8.2 Compaction

Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment to achieve firm subgrade. A minimum of 3 passes of compaction equipment shall be made.

#### 3.8.2.1 Subgrade for Access Roads

Subgrade for access roads shall be compacted by a minimum of 3 passes by the approved compaction equipment, or until firm ground is established. The top 6 inches (15 cm) of subgrade shall be scarified, windrowed, thoroughly blended, reshaped, and compacted.

#### 3.8.2.2 Incorporating Oversize Material into Subgrade

Oversize materials shall be processed into smaller sized material such that no individual pieces take up more than 5 cf of air space. These materials shall be placed in fill areas or small pits such that no portion extends above the prepared subgrade. Materials shall be separated by at least 3 feet from other oversize pieces. Fill shall be carefully placed and compacted around these materials to minimize void space.

### 3.9 FINISHING

The surface of excavations, embankments, and subgrades shall be finished to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown on the Drawings. The degree of finish for graded areas shall be within 0.1 foot (3 cm) of the grades and elevations indicated except that the degree of finish for subgrades shall be specified in Paragraph 3.8 SUBGRADE PREPARATION. Ditches shall be finished in a manner that will result in effective drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing materials.

### 3.10 TESTING

Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. If the Contractor elects to establish testing facilities, no work requiring testing will be permitted until the Contractor's facilities have been inspected and approved by the CO in accordance with Section 01451 CONTRACTOR QUALITY CONTROL. Field in-place density shall be determined in accordance with ASTM D 1556 or ASTM D 2167. When test results indicate, as determined by the CO, that compaction is not as specified, the material shall be promptly removed, replaced and recompact to meet

specification requirements. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a registered professional civil engineer. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

#### 3.10.1 Fill and Backfill Material Gradation

One test per 1,000 cubic yards (765 cubic meters) stockpiled or in-place source material. Gradation of fill and backfill material shall be determined in accordance with ASTM C 136, ASTM D 422, or ASTM D 1140, as appropriate.

#### 3.10.2 Optimum Moisture and Laboratory Maximum Dry Density

Tests shall be made for each type material or source of material including borrow material to determine the optimum moisture and laboratory-determined maximum dry density values. One representative test per 1,000 cubic yards (765 cubic meters) of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density. Compaction shall be performed on materials that are within  $\pm 2$  percent of the optimum moisture content for the materials being compacted unless otherwise authorized by the CO.

#### 3.10.3 Tolerance Tests for Subgrades

Continuous checks on the degree of finish specified in Paragraph 3.8 SUBGRADE PREPARATION shall be made during construction of the subgrades.

### 3.11 SUBGRADE AND EMBANKMENT PROTECTION

During construction, embankments and excavations shall be kept shaped and drained. Ditches and drains along subgrades shall be maintained to drain effectively at all times. The finished subgrade shall not be disturbed by traffic or other operation and shall be protected and maintained by the Contractor in a satisfactory condition until additional fill, ballast, subbase, base, or pavement is completely placed. The storage or stockpiling of materials on the finished subgrade will not be permitted. No subbase, preload, stabilized aggregate base course, backfill or other fill shall be laid until the subgrade has been checked and approved, and in no case shall stabilized aggregate base course be placed on a muddy, spongy, or frozen subgrade.

**END OF SECTION**

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## SECTION 02316

### EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The most recent revision of the reference applies.

#### U.S. ARMY CORPS OF ENGINEERS

EM 385-1-1                      Safety and Health Requirements

#### AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM) PUBLICATIONS

ASTM C 117	(1995) Standard Test Method for Materials Finer Than 75-mm (No. 200) Sieve in Mineral Aggregate by Washing
ASTM C 136	(1996a) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 422	(1998) Standard Test Method for Particle-Size Analysis of Soils
ASTM D 1556	(2000) Standard Test Method for Density and Unit Weight of Soils In- Place by the Sand-Cone Method
ASTM D 1557	(2000) Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft <sup>3</sup> ) (2,700 kN-m/m <sup>3</sup> ))
ASTM D 2167	(1994) Standard Test Method for Density and Unit Weight of Soil In- Place by the Rubber Balloon Method
ASTM D 2217	(1981) Standard Practice for Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Contents
ASTM D 2487	(2000) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)

ASTM D 3740 (2001) Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM D 4318 (2000) Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## 1.2 DEFINITIONS

### 1.2.1 Satisfactory Materials

Satisfactory materials shall consist of any material classified by ASTM D 2487 as, GW, GP, SP, and SW. Materials classified as SP-SM or GP-GM are also satisfactory provided that they contain moisture content suitable for the intended use. Satisfactory materials shall be free of trash, debris, roots, or other organic matter, or stones larger than 3 inches (8 centimeters [cm]) in any dimension.

### 1.2.2 Unsatisfactory Materials

Unsatisfactory materials shall be materials that do not comply with the requirements for satisfactory materials. Unsatisfactory materials include but are not limited to those materials containing roots and other organic matter, trash, debris, frozen materials and stones larger than 3 inches (8 cm), and materials classified in ASTM D 2487, such as PT, OH, and OL. Unsatisfactory materials also include man-made fills and refuse.

### 1.2.3 Cohesionless and Cohesive Materials

Cohesionless materials shall include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as SC, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Liquid limit and plasticity index shall be determined in accordance with ASTM D 4318 using ASTM D 2217, Procedure B. Determination of grain size for classification shall be made in conformance with ASTM C 117, C 136, or D 422.

### 1.2.4 Unyielding Material

Unyielding material shall consist of gravelly soils with stones greater than 3 inches (8 cm) in any dimension or as defined by the pipe manufacturer, whichever is smaller.

### 1.2.5 Unstable Material

Unstable material shall consist of materials too wet to properly support the utility pipe, conduit, or appurtenance structure.



### 1.2.6 Degree of Compaction

Degree of compaction shall be expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 1557, abbreviated as percent of laboratory-determined maximum dry density.

### 1.2.7 Pipe

Pipe shall consist of any pipe, conduit or wire used as conveyance for water, sewerage, power or telephone.

## 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTALS.

SD-09 Reports

Field Density Tests; GA

Testing of Backfill Materials; GA

Copies of all laboratory and field test reports within 24 hours of the completion of the test.

## 1.4 DESCRIPTION OF WORK

The Contractor shall perform all excavation, trenching, and backfilling for utility systems to the lines and grades shown on the Drawings. The following utilities shall be installed under this contract:

Water Supply

Telephone

Electrical Supply

The water supply line shall be placed in a trench by itself as shown on the Drawings. The telephone line and electrical conduit shall be placed in a second trench as shown on the Drawings.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### **2.1.1 Pipe Bedding**

Bedding material for utility trenches shall be a clean screened or crushed sand/gravel mixture, free from organic matter, and conforming to the gradation specified in Table 02316-1.

**Table 02316-1  
PIPE BEDDING GRADATION**

<b>Sieve Designation</b>	<b>Millimeters</b>	<b>Percentage by Weight Passing Square-Mesh Sieve<sup>a</sup></b>
3/4-inch	19.0	100
3/8-inch	9.5	70-100
No. 4	4.8	55-100
No. 10	2.0	35-95
No. 20	0.85	20-80
No. 40	0.43	10-55
No. 100	0.150	0-10
No. 200	0.075	0-3

<sup>a</sup>The values are based on aggregates of uniform specific gravity, and the percentages passing the various sieves are subject to appropriate correction in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravities are used.

#### **2.1.2 General Fill**

General fill shall consist of clean, predominantly earthen material free of deleterious items and containing no more than 5 percent visible organics or other materials as approved by CO.

## **PART 3 EXECUTION**

### **3.1 EXCAVATION**

Excavation of every description and of whatever substances encountered shall be performed to the lines and grades indicated. Earth excavation shall include removal and disposal of material and shall be unclassified. During excavation, material satisfactory for backfilling shall be stockpiled in an orderly manner at a distance from the banks of the trench equal to 1/2 the depth of the excavation, but in no instance closer than 2 feet (0.61 meters [m]). Excavated material not required or not satisfactory for backfill shall be graded into the adjacent areas and/or in the landfill area. Any

excess satisfactory excavated materials shall not be mixed with unsatisfactory materials. Grading shall be done as may be necessary to prevent surface water from flowing into the excavation, and any water accumulating therein shall be removed so that the stability of the bottom and sides of the excavation is maintained. Surface water shall be managed according to the Contractor's prepared Care and Diversion of Water Work Plan, according to requirements specified in Section 01560 CARE AND DIVERSION OF WATER of these Specifications. Unauthorized overexcavation shall be backfilled in accordance with Paragraph 3.2 BACKFILLING at no additional cost to the Government.

### 3.1.1 Trench Excavation

The trench shall be excavated as recommended by the manufacturer of the pipe to be installed. Trench walls below and above the top of the pipe shall be sloped, or made vertical, as recommended in the manufacturer's installation manual and to meet Federal OSHA requirements. The trench width below the top of the pipe shall not exceed that recommended in the installation manual. Where no manufacturer's installation manuals are available, trench walls shall be excavated to a stable angle of repose as required to properly complete the work without undermining adjacent features. Trench excavations shall adhere to requirements prescribed in EM 385-1-1, Safety and Health Requirements Manual. Special attention shall be given to slopes that may be adversely affected by weather or moisture content. Trench width below the top of the pipe shall not exceed 24 inches (61 cm) plus pipe outside diameter (O.D.) for pipes of less than 24 inch (61 cm) inside diameter. Where recommended trench widths are exceeded, redesign shall be performed by the Contractor using stronger pipe or special installation procedures. The cost of this redesign and the increased cost of pipe or installation procedures shall be borne by the Contractor without additional cost to the Government.

#### 3.1.1.1 Bottom Preparation

The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes, if required, shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 3 inches (8 cm) or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.

#### 3.1.1.2 Removal of Unyielding Material

Where unyielding material is encountered in the bottom of the trench, such material shall be removed 4 inches below the required grade and replaced with suitable materials as provided in Paragraph 3.2 BACKFILLING.

#### 3.1.1.3 Removal of Unstable Material

Where unstable material is encountered in the bottom of the trench, such material shall be removed to the depth directed by the Contracting Officer (CO) and replaced to the proper grade with select

granular material as provided in Paragraph 3.2 BACKFILLING. When removal of unstable material is required due to the fault or neglect of the Contractor in performance of the work, the resulting material shall be excavated and replaced by the Contractor at no additional cost to the Government.

### 3.1.2 Stockpiles

Stockpiles of satisfactory materials required for use on the project shall be placed and graded as specified. Stockpiles shall be kept in a neat and well-drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed by rubber-tired equipment. Excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government. Locations of stockpiles of satisfactory materials shall be subject to prior approval of the CO.

## 3.2 BACKFILLING

Backfill material shall consist of satisfactory material. Backfill shall be placed in layers not exceeding 6 inches loose thickness for compaction by hand operated machine compactors, and 8 inches loose thickness for other than hand operated machines unless otherwise specified. Each layer shall be compacted to at least 95 percent maximum dry density determined in accordance with ASTM D 1557 for cohesionless soils and 90 percent maximum dry density determined in accordance with ASTM D 1557 for cohesive soils, unless otherwise specified. The backfill shall be brought up evenly on both sides of the pipe for the full length. Care shall be taken to ensure thorough compaction of the fill under the haunch of the pipe. Water flooding or jetting methods of compaction will not be permitted in any trench backfilling construction.

### 3.2.1 Trench Backfill

Trenches shall be backfilled to the grade shown. The trench shall be backfilled to 2 feet (0.61 meters [m]) above the top of the pipe or to final grade if less than 2 feet (0.61 m) of embedment prior to performing the required pressure tests. The joints and couplings shall be left uncovered during the pressure test. The remainder of the trench shall not be backfilled until all specified tests are performed.

#### 3.2.1.1 Replacement of Unyielding Material

Unyielding material removed from the bottom of the trench shall be replaced with pipe bedding material as described in Section 3.2.1.3 Initial Backfill.

### 3.2.1.2 Replacement of Unstable Material

Unstable material removed from the bottom of the trench or excavation shall be replaced with initial backfill as described in Section 3.2.1.3 Bedding and Initial Backfill and placed in layers not exceeding 6 inches (15 cm) loose thickness.

### 3.2.1.3 Initial Backfill

The initial backfill shall be of the type and thickness shown on the Drawings. Pipe bedding shall be clean, sand-gravel mixture free from organic matter and conforming to the gradation specified in Part 2 of this section.

Initial backfill of the pipe bedding material shall be placed to a height of at least 1 foot (0.3 m) above the utility pipe or conduit. Backfill material in this portion of the trench shall consist of satisfactory material at a moisture content that will facilitate compaction, free from stones of such size as recommended by the pipe manufacturer, or larger than 2 inches (5 cm) in any dimension, whichever is smaller. Where the pipe is coated or wrapped for protection against corrosion, the backfill material shall be free of stones larger than 1 inch (2.5 cm) in any dimension or as recommended by the pipe manufacturer, whichever is smaller.

### 3.2.1.4 Final Backfill

The remainder of the trench, except for special materials for roadways, shall be backfilled with satisfactory material compacted to the minimum requirements specified in paragraph 3.2 BACKFILLING. Backfill material shall be placed up to the elevation at which the requirements in Section 02300 EARTHWORK control for subgrade for access roads.

## 3.3 SPECIAL REQUIREMENTS

Special requirements for both excavation and backfill relating to the specific utilities are as follows:

### 3.3.1 Depth of Embedment

Trenches shall be of a depth to provide a minimum cover of 3 feet (0.91 m) from the existing ground surface, or from the indicated finished grade, whichever is lower, to the top of the pipe. Depth of power and telephone lines shall be as recommended by the local power and telephone companies, respectively.

### 3.3.2 Plastic Marking Tape

Warning tapes shall be installed directly above the pipe at a depth of 18 inches (46 cm) below finished grade unless otherwise shown. The plastic tape shall be acid- and alkali-resistant polyethylene film, 6 inches (15 cm) wide with minimum thickness of 0.004 inch (0.10 millimeters [mm]). Tape shall have a minimum strength of 1,750 psi (12.0 megaPascals [MPa]) lengthwise and

1,500 psi (10.3 MPa) crosswise. Tape color shall be as specified in Table 02221-2 and shall bear a continuous printed inscription describing the specific utility. The tape shall be manufactured with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to 3 feet (0.91 m) deep. The tape shall be of a type specifically manufactured for marking and locating underground utilities. The metallic core of the tape shall be encased in a protective jacket or provided with other means to protect it from corrosion.

**Table 02316-2  
TAPE COLOR**

<b>Color</b>	<b>Type of Pipe</b>
Red	Electric
Yellow	Gas, Oil, Dangerous Materials
Orange	Telephone, Telegraph, Television, Police, and Fire Communications
Blue	Water Systems
Green	Sewer Systems

### 3.4 GENERAL QUALITY CONTROL TESTING

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government.

#### 3.4.1 Testing Facilities

Tests shall be performed by an approved commercial testing laboratory. Approval of testing facilities and personnel shall be based on compliance with ASTM D 3740 and Section 01451 CONTRACTOR QUALITY CONTROL.

#### 3.4.2 Laboratory Tests

Laboratory tests for moisture-density relations shall be determined in accordance with ASTM D 1557 and shall be conducted at a minimum frequency of one test initially per each type of material or one every 10 field density tests. A mechanical tamper may be used, provided the results are correlated with those obtained by the referenced hand tamper or ASTM D 1557. Field in-place density shall be determined in accordance with ASTM D 1556 or D 2167 and shall be at a minimum frequency of one test per lift for each increment or fraction of 500 linear feet (152 linear meters). Trenches improperly compacted shall be reopened to the depth directed, then refilled and compacted to the density specified at no additional cost to the Government.

#### 3.4.3 Displacement of Sewer (Not Used)

**END OF SECTION**

## SECTION 02317

### LNAPL COLLECTION TRENCH

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

#### U.S. ARMY CORPS OF ENGINEERS

EM 385-1-1                      Safety and Health Requirements

#### AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)

ASTM C 117	(1990) Test Method for Materials Finer Than No. 200 Sieve in Mineral Aggregate By Washing
ASTM C 136	(1984, Rev. a) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 75	(1987) Sampling Aggregates
ASTM D 422	(1963; R 1972) Particle Size Analysis of Soils
ASTM D 1248	Properties of PE pipe
ASTM D 1556	(1982) Density of Soils In-Place by the Sand-Cone Method
ASTM D 1557	(2000) Test Method for Laboratory Compaction Characteristics of Soil Using Modified Method Effort (56,000 ft-lb/ft <sup>3</sup> ) (2,700 kN-m/m <sup>3</sup> ))
ASTM D 2167	(1984) Density and Unit Weight of Soil In-Place by the Rubber Balloon Method
ASTM D 2217	(1966) Wet Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Contents
ASTM D 2487	(1985) Classification of Soils for Engineering Purposes

ASTM D 3740	(1992) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D 4318	(1984) Liquid Limit, Plastic Limit and Plasticity Index of Soils
ASTM F 412	PE pipe designation code

## 1.2 DESCRIPTION OF WORK

The Contractor shall provide all labor, materials, equipment and testing necessary to complete the light non-aqueous phase liquid (LNAPL) collection trench specified in this section and shown on the Drawings. Forty-five calendar days after Notice to Proceed (NTP), the Contractor shall provide a LNAPL collection trench installation plan as part of the RAMP (Section 01400 REMEDIAL ACTION MANAGEMENT PLAN) for approval by the Contracting Officer (CO). The plan shall outline Contractor plans and contingency plans for completion of the trench and all associated components including specifics on how the two sumps will be installed. The plan shall focus on the requirements of keeping the trench open for installation of a geomembrane liner on one wall and installation of designated backfill material with shallow groundwater. The plan shall include the procedures and equipment planned for construction. The plan shall avoid the entry of workers in the trench. Possible strategies for completing the trench installation may include dewatering, using trench box(es), or installing backfill in a biodegradable slurry.

This specification covers the installation of a 150-foot (38.1-meter [m]) long LNAPL collection trench with two slotted stainless steel collection sumps. The trench shall be constructed to an elevation of at least 2 feet (0.61 m) above mean lower low water (MLLW) (approximately 14 feet (4.3 m) below ground surface [bgs]). The downgradient side of the trench shall have a LNAPL containment geomembrane installed to elevation 5 feet (1.5 m) above MLLW or deeper to prevent the flow of LNAPL past the trench. The two collections sumps shall be secured in place with a grout/concrete surface seal. The trench backfill shall be installed from approximately 2 feet (0.51 m) bgs to the bottom of the trench. The trench backfill shall be overlaid with a nonwoven geotextile in accordance with Section 02373 SEPARATION/FILTRATION GEOTEXTILE then overlaid with general fill to cover the trench as shown on the Drawings. The LNAPL containment geomembrane shall be installed per Section 02379 LNAPL CONTAINMENT GEOMEMBRANE. The Contractor shall perform all excavation, trenching, and backfilling for to the LNAPL collection trench to the lines and grades shown on the Drawings.

## 1.3 DEGREE OF COMPACTION

Degree of compaction shall be expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D 1557, abbreviated as percent of laboratory-determined maximum dry density.



## 1.4 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTALS.

### SD-01 Data

Trench installation plan; GA.

A plan detailing contractor plans and contingency plans for completion of the trench, and all associated components as described in Paragraph 1.2 DESCRIPTION OF WORK, shall be submitted 45 calendar days after Notice to Proceed, as part of the RAMP (Section 01400). The plans shall include a description of planned installation of a 100-mil HDPE geomembrane described in Section 02379 LNAPL CONTAINMENT GEOMEMBRANE and a discussion of constructability and safety issues for the installation.

### SD-09 Reports

Field Density Tests; GA.

Testing of Backfill Materials; GA.

Testing shall be in conformance to requirements specified in Part 2 PRODUCTS.

## 1.5 STOCKPILING MATERIALS

Materials, including material removed from the trench excavation, shall be stockpiled in locations designated. The material excavated from the trench will contain waste and be stored in a manner and location approved by the CO. Before stockpiling of material from off site, storage sites shall be cleared, and sloped to drain. Materials obtained from different sources shall be stockpiled separately. Submittals for imported materials shall be approved prior to delivery to the site.

## 1.6 SAMPLING AND TESTING

### 1.6.1 General Requirements

Sampling and testing shall be performed on materials listed in Part 2 PRODUCTS by an approved commercial testing laboratory.

### 1.6.2 Test Results

Results shall verify that materials comply with this specification. When deficiencies are found, the initial analysis shall be repeated and the material already placed shall be retested to determine the

extent of unacceptable material. All in-place unacceptable material shall be replaced or modified to meet specification requirements.

#### 1.6.3 Sampling

Aggregate samples for laboratory tests shall be taken in accordance with ASTM D 75.

#### 1.6.4 Sieve Analysis

Before starting work, at least one sample of each material shall be tested in accordance with ASTM C 136 and ASTM D 422 on sieves conforming to ASTM E 11 and meet the requirements of Part 2 PRODUCTS.

#### 1.6.5 Laboratory Density

Tests shall be performed to provide a moisture-density relationship for the general fill materials. Tests shall be conducted in accordance with ASTM D 1557 or ASTM D 698. Material shall meet requirements for general fill in Part 2 PRODUCTS.

#### 1.6.6 Sampling and Testing During Construction

Quality control sampling and testing during construction shall be performed as specified in Section 01451 CONTRACTOR QUALITY CONTROL.

#### 1.6.7 Frequency

A minimum of one sieve test shall be performed on every 100 cubic yards (76 cubic meters) of trench backfill. A minimum of one sieve test and one density test shall be performed for every 20 cubic yards (15 cubic meters) of general fill used in trench construction.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

#### **2.1.1 Trench Backfill**

LNAPL collection trench backfill shall be a clean screened sand/gravel mixture, free from organic matter, and conforming to the gradation specified in Table 02317-1.

**Table 02317-1**  
**LNAPL COLLECTION TRENCH BACKFILL GRADATION**

<b>Sieve Designation</b>	<b>Millimeters</b>	<b>Percentage by Weight Passing Square-Mesh Sieve</b>
1-1/2-inch	38	100
1-inch	25	60-90
½-inch	13	30-65
No. 4	4.8	20-50
No. 10	2.0	15-40
No. 40	0.43	0-5
No. 200	0.075	0-2

### 2.1.2 General Fill

The top 2 feet (0.61 m) of the trench shall be backfilled with general fill. General fill shall consist of clean, dominantly earthen material from off-site or on-site sources free of deleterious items and containing no more than 5 percent visible organics or other material as approved by CO. General fill shall meet the classification of CL, SC, or GC in accordance with ASTM D 2487 and have uniform size of 1-1/2 inch and less than 10% material by weight greater than 1/2 inch.

### 2.1.3 Collection Trench Sumps

#### 2.1.3.1 Collection Sump

Two LNAP collection sumps constructed from 304 SS continuous wire wrap screen and carbon steel casing shall be installed with the trench system. The sumps shall be a minimum of 24-inch (61-cm) OD and have a 10-foot (3-m) long section of 30 slot screen. Each collection sump shall have a 1.5-foot (0.5-m) long end sump at the bottom end of the screened section. Carbon steel casing shall extend a minimum of 4 feet (1.2 m) above the top of the surface grade. The sump shall be constructed so that extensions may be added as necessary to meet the final elevation of the landfill cap constructed by others during Phase II of the project. All sump components shall be welded together.

#### 2.1.3.2 Sump Screen

The sump screened interval shall be factory constructed consisting of a continuous wire wrap with a slot size of 0.030 inch (0.76 mm). The ends shall be as shown on the Drawings. The screen assembly shall be straight to within 0.200 inch (5 mm) over any 10-foot (3.1-m) length of section. The screen shall be US Filter Johnson Screen or equivalent, St. Paul, Minnesota (800-833-9473). The sump shall be a Large Diameter Shallow Depth well screen model 24P or equivalent.

### 2.1.3.3 Sump Casing

#### 2.1.3.3.1 Carbon Steel Pipe

Carbon steel pipe shall meet the requirements of ASTM A53 and API Spec 51, and be Schedule 40 minimum. Minimum wall thickness shall be 3/8 inch (10 mm). Carbon steel piping shall be joined by welding.

#### 2.1.3.3.2 Carbon Steel Silicone Coatings

Carbon steel piping components shall be coated with corrosion resistant materials. Coatings and finishes shall be 100 percent holiday free. Carbon steel piping surfaces shall be prepared in accordance with Society of Protective Coatings (SSPC)-SP-6/National Association of Corrosion Engineers (NACE) 3. The surfaces shall have an alkyd primer of 2.5 mils (0.0625 mm) dry film thickness followed by two alkyd modified silicone final coats.

### 2.1.4 Grout/Concrete Surface Seal

A grout surface seal shall be installed at each sump for stability. The grout seal shall consist of Type I or II portland cement. All other requirements shall conform to Section 03307 CONCRETE FOR MINOR STRUCTURES.

### 2.1.5 Other Materials

The collection trench shall include a geomembrane in its construction. Geomembrane for use in the collection trench is specified in Section 02379 LNAPL CONTAINMENT GEOMEMBRANE. All materials used in the construction of the LNAPL collection trench shall be compatible with LNAPL.

## **PART 3 EXECUTION**

### 3.1 LNAPL TRENCH INSTALLATION

Excavation and completion of the LNAPL collection trench and associated components shall be performed in accordance with the CO-approved trench installation plan submitted by the Contractor as part of the RAMP prior to the start of work.

### 3.2 LNAPL COLLECTION TRENCH EXCAVATION

Trench excavation shall be performed to the lines and grades indicated. Excavated material not required or not satisfactory for backfill shall be stockpiled in an area approved by the CO for later incorporation in the landfill. Any excess satisfactory excavated materials shall not be mixed with unsatisfactory materials. Grading shall be done as necessary to prevent surface water from flowing

into the trench, and any water accumulating therein shall be removed so that the stability of the bottom and sides of the trench is maintained. Surface water will be managed according to the Contractor's prepared Stormwater Management Plan, and according to other requirements specified in Section 01560 CARE AND DIVERSION OF WATER. Unauthorized overexcavation shall be backfilled in accordance with Paragraph 3.3 TRENCH BACKFILLING at no additional cost to the Government. Trench excavations shall adhere to requirements prescribed in EM 385-1-1, Safety and Health Requirements Manual. Special attention shall be given to slopes that may be adversely affected by weather or moisture content. The Contractor shall use a Caterpillar Model 225 Excavator or equivalent for excavation and have equipment on-site to break down oversize debris and process scrap metal for disposal.

### 3.2.1 Sump Excavation

The trench shall have additional excavation width at the collection sumps as shown on the Drawings.

### 3.2.2 Geomembrane

LNAPL containment geomembrane shall be installed by the Contractor on the downgradient edge of the trench. The geomembrane shall be installed as one continuous piece if possible and protected from damage during installation per Section 02379 LNAPL CONTAINMENT GEOMEMBRANE. Geomembrane shall also be installed over the top of the trench backfill at a depth shown on the drawings to prevent infiltration of overlaying soils and stormwater. Installation procedure shall be performed as specified in the CO approved Contractor Trench Installation Plan.

### 3.2.3 Stockpiles

Stockpiles of satisfactory materials required for use in this section shall be placed and graded as specified. Stockpiles shall be kept in a neat and well-drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed by rubber-tired equipment. Excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination, which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government. Locations of stockpiles of satisfactory materials shall be subject to prior approval of the CO.

## 3.3 TRENCH BACKFILLING

Backfill material for the trench from the bottom to 2 feet (0.6 m) bgs shall consist of satisfactory material meeting the requirements for trench backfill listed in Part 2 PRODUCTS and Table 02317-1 of this section. The trench backfill shall be installed per the CO approved trench installation plan. No compaction of the trench backfill material is required. The LNAPL collection trench shall be backfilled to the grade shown on the Drawings. The trench shall be backfilled to 2 feet (0.61 m) bgs with the material specified on the drawings, between ground surface and 2 feet

(0.61 m) bgs the trench shall be backfilled with general fill. General fill shall be compacted to a minimum 95 percent of maximum density determined in accordance with ASTM D 1557 and a moisture content within 2 percent of optimum. The trench shall not be backfilled until all specified tests are performed.

### 3.4 SUMP INSTALLATION

PE pipe installation shall conform to manufacturer's recommendations

### 3.5 GENERAL QUALITY CONTROL TESTING

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government.

#### 3.5.1 Testing Facilities

Tests shall be performed by an approved commercial testing laboratory. Approval of testing facilities and personnel shall be based on compliance with ASTM D 3740 and Section 01451 CONTRACTOR QUALITY CONTROL.

#### 3.5.2 Laboratory Tests

Before starting work, one Sieve Analysis of the trench backfill and general fill material shall be tested in accordance with ASTM C 136 and ASTM D 422 on sieves conforming to ASTM E 11. Laboratory tests for moisture-density relations shall be determined for the general fill in accordance with ASTM D 1557 and shall be conducted at a minimum frequency of one test initially per each type of general fill material used or one every 10 field density tests. Field in-place density shall be determined for the general fill in accordance with ASTM D 1556 or D 2167 and shall be at a minimum frequency of one test per lift for each increment or fraction of 100 linear feet (30 linear meters). Trenches improperly compacted shall be reopened to the depth directed, then refilled and compacted to the density specified at no additional cost to the Government.

**END OF SECTION**

## SECTION 02373

### SEPARATION/FILTRATION GEOTEXTILE

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of the specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4354	(1999) Standard Practice for Sampling of Geosynthetics for Testing
ASTM D 4355	(1999) Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1999a) Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1996) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1996) Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1999a) Standard Test Method for Determining Apparent Opening Size of a Geotextile
ASTM D 4759	(1996) Standard Practice for Determining the Specification Conformance of Geosynthetics
ASTM D 4833	(2000) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2001) Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples

## U.S. ARMY CORPS OF ENGINEERS

TM 5-818/  
AFJMAN32-1030 (1995) Engineering Use of Geotextile

### 1.2 SUBMITTALS

Government approval is required for submittals with a “GA” designation. Submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

#### SD-01 Data

Thread; GA.

A minimum of 30 calendar days prior to scheduled use, proposed thread type for sewn seams along with data sheets showing the physical properties of the thread.

#### SD-06 Instructions

Manufacturing Quality Control Sampling and Testing; GA.

A minimum of 30 calendar days prior to scheduled use, manufacturer’s quality control manual including instructions for geotextile storage, handling, installation, seaming, and repair.

#### SD-09 Reports

Seams; GA.

Seam strength test results.

#### SD-13 Certificates

Geotextile; GA.

A minimum of 30 calendar days prior to scheduled use, manufacturer’s certificate of compliance stating that the geotextile meets the requirements of this section. This submittal shall include copies of manufacturer’s quality control test results. For needle punched geotextiles, the manufacturer shall also certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. The certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer.



## SD-14 Samples

### Quality Assurance Samples and Tests; GA.

Samples for quality assurance testing; 14 calendar days shall be allotted in the schedule to allow for testing.

## 1.3 DELIVERY, STORAGE, AND HANDLING

Delivery, storage, and handling of geotextile shall be in accordance with ASTM D 4873.

### 1.3.1 Delivery

The Contractor shall notify the Contracting Officer (CO) 24 hours prior to delivery of geotextile materials to the Site.

The Contractor shall coordinate such that the CO will be present during delivery and unloading of the geotextile. Rolls shall be packaged in an opaque, waterproof, protective plastic wrapping. The plastic wrapping shall not be removed until deployment. If quality assurance samples are collected, rolls shall be immediately rewrapped with the plastic wrapping. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed. Each roll shall be labeled with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

### 1.3.2 Storage

Geotextile rolls and panels shall be protected from becoming saturated. Rolls and panels shall either be elevated off the ground or placed on a sacrificial sheet of plastic. The geotextile rolls and panels shall also be protected from the following: construction equipment, ultraviolet radiation, chemicals, sparks and flames, temperatures in excess of 160 degrees F (71 degrees C), and any other environmental condition that may damage the physical properties of the geotextile.

### 1.3.3 Handling

Geotextile rolls shall be handled and unloaded with load carrying straps, a fork lift with a stinger bar, or an axial bar and spreader bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground. Smaller panels shall be handled in a manner to avoid damage prior to and during installation.

## **PART 2 PRODUCTS**

### **2.1 RAW MATERIALS**

Geotextile materials shall consist of the following:

- a. Nonwoven separation geotextile for preloading of landfill
- b. Woven reinforcement geotextile for access road construction
- c. Nonwoven geotextile for LNAPL collection trench

#### **2.1.1 Nonwoven Separation Geotextile for Preloading of Landfill**

The geotextile used for separation of preloading backfill from underlying landfill material shall be a 4-ounce (113 grams), nonwoven, pervious sheet of polymeric material. This material will be sacrificed following each preloading event, and serves only to delineate the boundary between the landfill and the preloading backfill. A white or black colored geotextile shall be used to increase visibility during excavation of overlying materials. The material shall have a minimum average roll value (MARV) grab tensile strength of 100 pounds (lbs) (45.4 kilograms [kg]) as determined by ASTM D 4632 and a MARV trapezoidal tear of 45 lbs (20.4 kg) as determined by ASTM D 4533.

#### **2.1.2 Woven Reinforcement Geotextile for Access Road Construction**

The geotextile used for access road construction shall be a woven pervious sheet of polymeric material and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e., geotextiles made from yarns of a flat, tape-like character) will not be allowed. Stabilizers and/or inhibitors shall be added to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the geotextile. Post-consumer recycled material shall not be used. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the selvages. Geotextiles and factory seams shall meet the requirements specified in Table 02373-1. Where applicable, Table 02373-1 property values represent minimum average roll values (MARV) in the weakest principal direction.

**Table 02373-1**  
**ACCESS ROAD REINFORCEMENT GEOTEXTILE PHYSICAL PROPERTIES**

<b>Property</b>	<b>Test Method</b>	<b>Minimum Average Roll Value (MARV)</b>
<b>Mechanical</b>		
Grab tensile strength	ASTM D 4632	200 lbs (90.7 kg)
Grab elongation	ASTM D 4632	<15%
Puncture strength	ASTM D 4833	100 lbs (45.4 kg)
Burst strength	ASTM D 3786	400 psi (2.8 MPa)
Trapezoidal tear	ASTM D 4533	75 lbs (34.0 kg)
Factory seam strength	ASTM D 4632	120 lbs (54.4 kg)
<b>Endurance</b>		
Ultraviolet resistance (% retained after 500 hours)	ASTM D 4355	70%
<b>Filtration</b>		
AOS (apparent opening size) U.S. Sieve	ASTM D 4751	40

kg - kilogram

lbs - pounds

psi - pounds per square inch

### 2.1.3 Nonwoven Geotextile for LNAPL Collection Trench

The geotextile used above the trench drain rock in the LNAPL collection trench shall be an 8-ounce (227 grams), nonwoven, geotextile manufactured from at least 95 percent by weight polypropylene or polyester materials. The geotextile shall be manufactured from virgin materials with no recycled scrap or regrind materials included. Stabilizers and/or inhibitors shall be added to the base polymer, as needed, to make the materials resistant to deterioration by ultraviolet light, oxidation and heat exposure. The geotextile shall meet the requirements of Table 02373-2. The geomembrane installed over the nonwoven geotextile in the LNAPL collection trench shall meet the requirements of Section 07379 LNAPL CONTAINMENT GEOMEMBRANE.

**Table 02373-2**  
**LNAPL COLLECTION TRENCH GEOTEXTILE PHYSICAL PROPERTIES**

<b>Property</b>	<b>Test Method</b>	<b>Minimum Average Roll Value (MARV)</b>
<b>Mechanical</b>		
Grab tensile strength	ASTM D 4632	205 lbs (93.0 kg)
Puncture strength	ASTM D 4833	105 lbs (47.6 kg)
Burst strength	ASTM D 3786	350 psi (2.4 MPa)
<b>Endurance</b>		
Ultraviolet resistance (at 500 hours)	ASTM D 4355	70%
<b>Filtration</b>		
AOS (apparent opening size) U.S. Sieve	ASTM D 4751	80

#### 2.1.4 Thread

Sewn seams shall be constructed with high-strength polyester, nylon, or other approved thread type. Thread shall have ultraviolet light stability equivalent to the geotextile and the color shall contrast with the geotextile.

### 2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

Manufacturing quality control sampling and testing shall be performed in accordance with the manufacturer's approved quality control manual. As a minimum, geotextiles shall be randomly sampled for testing in accordance with ASTM D 4354, Procedure A. Acceptance of geotextile shall be in accordance with ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

## PART 3 EXECUTION

### 3.1 QUALITY CONTROL AND ASSURANCE SAMPLES AND TESTS

#### 3.1.1 Quality Assurance Samples

The Contractor shall provide results of manufacturer's Quality Assurance Testing and testing of field quality control samples. Field samples shall be collected upon delivery to the site for quality control testing in accordance with ASTM D 4354, Procedure B. Lot size for quality control sampling shall be considered to be the shipment quantity of the product or a truckload of the product, whichever is smaller. The unit size shall be considered one roll of geotextile. Samples shall be identified with a waterproof marker by manufacturer's name, product identification, lot number, roll number, and

machine direction. The date and a unique sample number shall also be noted on the sample. The outer layer of the geotextile roll shall be discarded prior to sampling a roll. Smaller individual panels may be sampled after discarding 3 feet (0.91 m) of material from one end of the panel. Samples shall then be collected by cutting the full-width of the geotextile sheet a minimum of 3 feet (0.91 m) long in the machine direction. Rolls or panels which are sampled shall be immediately rewrapped in their protective covering.

### 3.1.2 Quality Assurance Tests

The Contractor shall provide quality assurance samples to an Independent Laboratory hired by the Contractor. Samples shall be tested to verify that the geotextiles meet the requirements specified in paragraph 2.1.1 Nonwoven Separation Geotextile for Preloading of Landfill, paragraph 2.1.2 Woven Reinforcement Geotextile for Access Road Construction, and paragraph 2.1.3 Nonwoven Geotextile for LNAPL Collection Trench. Test method ASTM D 4355 shall not be performed on the collected samples. Geotextile product acceptance shall be based on ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls or panels.

## 3.2 INSTALLATION

### 3.2.1 Subgrade Preparation

The surface underlying the geotextile shall be smooth and free of ruts or protrusions which could damage the geotextile. Subgrade materials and compaction requirements shall be in accordance with Section 02300 EARTHWORK.

### 3.2.2 Placement

The Contractor shall request the presence of the CO during handling and installation. Geotextile rolls which are damaged or contain imperfections shall be repaired or replaced as directed. The geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall be taut and free of folds, and wrinkles. On slopes greater than 5 horizontal to 1 vertical, the geotextile shall be laid with the machine direction of the fabric parallel to the slope direction.

## 3.3 SEAMS

Nonwoven geotextile seams may be overlapped or sewn at the Contractor's option, or in accordance with manufacturer's recommendations, whichever is more stringent. Woven access road reinforcement geotextiles shall have sewn seams.

### 3.3.1 Overlap Seams

Nonwoven geotextile panels shall be continuously overlapped a minimum of 24 inches (61 cm). Where it is required that seams be oriented across a slope, the upper panel shall be lapped over the

lower panel. The Contractor has the option of field sewing instead of overlapping in accordance with the geotextile manufacturer's specifications.

### 3.3.2 Sewn Seams

Sewn seams shall be continuously sewn at the locations where panels abut. A flat seam with one row of a two-thread chain stitch shall be used unless otherwise recommended by the manufacturer. The minimum distance from the geotextile edge to the stitch line nearest to that edge shall be 3 inches (8 cm) unless otherwise recommended by the manufacturer. Seams shall be tested at a frequency of once per 750 feet (228.6 m). Field seam strength shall meet the minimum requirements specified in Table 02373-1 for factory seam strength. Quality assurance samples shall be taken at the request of the CO. The thread at the end of each seam run shall be tied off to prevent unraveling. Seams shall be on the top side of the geotextile to allow inspection. Skipped stitches or discontinuities shall be sewn with an extra line of stitching with a minimum of 18 inches (46 cm) of overlap.

### 3.4 PROTECTION

The Contractor shall be solely responsible for protecting the geotextile during installation and covering from clogging, tears, and other damage. Any damage to the geotextile during its installation or during placement of stabilized aggregate base course granular filter materials, trench backfill, preload, bedding materials, riprap or other cover materials shall be removed, replaced, or repaired to the satisfaction of the CO at the Contractor's expense. Adequate ballast (e.g., sand bags) shall be used to prevent uplift by wind. The geotextile shall not be left uncovered for more than 3 calendar days during installation.

### 3.5 REPAIRS

Nonwoven geotextiles damaged during installation shall be repaired by placing a patch of the same type of geotextile which extends a minimum of 12 inches (30 cm) beyond the edge of the damage or defect. Patches shall be continuously fastened using a sewn seam or other approved method. The machine direction of the patch shall be aligned with the machine direction of the geotextile being repaired. Geotextile which cannot be repaired shall be replaced. Woven access road reinforcement geotextile damaged during installation shall be replaced over the entire width of the roadway.

### 3.6 PENETRATIONS

Engineered penetrations of the geotextile shall be constructed in areas as shown on the Drawings or in areas of necessary penetration by methods recommended by the geotextile manufacturer.

### 3.7 COVERING

#### 3.7.1 Landfill Area

Geotextile shall not be covered with preloading fill prior to approval by the CO. The Contractor shall request the presence of the CO during covering of the geotextile. Preloading backfill requirements are described in Section 02300 EARTHWORK. The direction of backfilling shall proceed in the directions shown on the Drawings. No equipment shall be operated directly on top of the geotextile. A minimum of 12 inches (30 cm) of fill shall be maintained between full-scale construction equipment tires/tracks and the geotextile during the covering process. Placement and testing requirements for preloading backfill are described in Section 02300 EARTHWORK and Section 01451 CONTRACTOR QUALITY CONTROL.

#### 3.7.2 Access Roads

Geotextile shall not be covered with stabilized base course aggregate prior to approval by the CO. The Contractor shall request the presence of the CO during covering of the geotextile. The base course shall have a maximum particle size of stabilized aggregate and shall be free of sticks, roots, and other objects which could damage the geotextile. Base course requirements are described in Section 02241 BASE COURSE. The direction of backfilling shall proceed in the direction of downgradient shingling of geotextile overlaps. However, on side slopes, backfill shall be placed from the bottom of the slope upward. Base course shall be placed in a manner that reduces the risk of material entering the geotextile overlap zone, and prevents wrinkles from forming or folding over onto themselves. No equipment shall be operated directly on top of the geotextile. A minimum of 8 inches (20 cm) of base course shall be maintained between full-scale construction equipment tires/tracks and the geotextile during the covering process. Compaction and testing requirements for base course are described in Section 02241 BASE COURSE.

**END OF SECTION**

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## SECTION 02379

### LNAPL CONTAINMENT GEOMEMBRANE

#### PART 1 GENERAL

##### 1.1 REFERENCES

The publications listed below form a part of the specification to the extent referenced. The publications are referenced in the text by basic designation only. The most recent revision of the reference applies.

#### AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 638	(1997) Tensile Properties of Plastics
ASTM D 751	(1995) Coated Fabrics
ASTM D 792	(1991) Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D814	(1995) Standard Test Methods for Rubber Cements
ASTM D 882	(1995a) Tensile Properties of Thin Plastic Sheeting
ASTM D 1004	(1994a) Initial Tear Resistance of Plastic Film and Sheeting
ASTM D 1203	(1994) Volatile Losses from Plastics Using Activated Carbon Methods
ASTM D 1204	(1994) Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature
ASTM D 1505	(1996) Density of Plastics by the Density-Gradient Technique
ASTM D 1593	(1992) Nonrigid Vinyl Chloride Plastic Sheeting
ASTM D 1603	(1994) Carbon Black in Olefin Plastics
ASTM D 1790	(1994) Brittleness Temperature of Plastic
ASTM D 3895	(1997) Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
ASTM D 4218	(1996) Determination of Carbon Black Content in Polyethylene Compounds By the Muffle-Furnace Technique

ASTM D 4833	(1988; R 1996) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 5199	(1995) Measuring Nominal Thickness of Geotextiles and Geomembranes
ASTM D 5321	(1992) Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
ASTM D 5397	(1995) Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
ASTM D 5596	(1994) Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
ASTM D 5617	(1994) Multi-Axial Tension Test for Geosynthetics
ASTM D 5721	(1995) Air-Oven Aging of Polyolefin Geomembranes
ASTM D 5885	(1995) Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry
ASTM D 5994	(1996) Measuring Core Thickness of Textured Geomembrane

#### GEOSYNTHETIC RESEARCH INSTITUTE (GRI)

GRI Test Meth GM-7	(1995) Accelerated Curing of Geomembrane Test Strip Seams Made by Chemical Fusion Methods
GRI Test Meth GM-9	(1995) Cold Weather Seaming of Geomembranes
GRI Test Meth GM-11	(1997) Accelerated Weathering of Geomembranes Using a Fluorescent UVA Device
GRI Test Meth GM-12	(1997) Asperity Measurement of Textured Geomembranes Using a Depth Gauge

## 1.2 DESCRIPTION OF WORK

Contractor shall provide all labor, materials, equipment and testing necessary to complete the light non-aqueous phase liquid (LNAPL) Containment Geomembrane installation in the LNAPL collection trench specified in this section, coordinated with Section 02317 LNAPL COLLECTION TRENCH, and shown on the Drawings. Plans for installation of the geomembrane shall be included in the Trench Installation Plan submitted in accordance with Section 02317 LNAPL COLLECTION TRENCH and as part of the RAMP (Section 01400

REMEDIAL ACTION MANAGEMENT PLAN) for approval by the Contracting Officer (CO).

This specification covers the installation of the following:

- a. LNAPL containment geomembrane on the downgradient side of the LNAPL collection trench
- b. Geomembrane overlying trench backfill and geotextile in the LNAPL collection trench

The LNAPL containment geomembrane shall be installed on the downgradient side of the LNAPL collection trench to elevation 5 feet (1.5 m) above MLLW or deeper to prevent the flow of LNAPL past the trench, as indicated on the Drawings.

The geomembrane overlying trench backfill and geotextile in the LNAPL collection trench shall be installed at approximately 2 feet (0.51 m) below ground surface (bgs) as indicated on the Drawings. The geotextile shall meet the requirements of Section 02373 SEPARATION/FILTRATION GEOTEXTILE. The geomembrane shall be installed as specified in this Section, except that HDPE boots will not be required around the two LNAPL collection sumps. The holes cut in the liner for the sumps shall be as small as possible to accommodate the sump casings.

### 1.3 QUALIFICATIONS

#### 1.3.1 Manufacturer

Manufacturer shall have produced the proposed geomembrane sheets for at least 5 completed projects having a total minimum area of 1 million square feet (93,000 square meters).

#### 1.3.2 Fabricator

The fabricator is responsible for seaming geomembrane sheets into panels. Fabricator shall have fabricated the proposed geomembrane panels for at least 5 completed projects having a total minimum area of 1 million square feet (93,000 square meters).

#### 1.3.3 Installer

The installer is responsible for field handling, deploying, seaming, anchoring, and field quality control (QC) testing of the geomembrane. The installer shall have installed the proposed geomembrane material for at least 5 completed projects having a total minimum area of 1 million square feet (93,000 square meters). At least one seamer shall have experience seaming a minimum of 100,000 square feet (9,300 square meters) of the proposed geomembrane or similar geomembrane materials using the same type of seaming equipment specified for this project.

#### 1.3.4 QC Inspector

The QC inspector is the person or corporation hired by the Contractor, who is responsible for monitoring and documenting activities related to the QC of the geomembrane from manufacturing through installation. The QC inspector shall have provided QC inspection during installation of the proposed geomembrane material for at least 5 completed projects having a total minimum area of 1 million square feet (93,000 square meters).

#### 1.3.5 QC Laboratory

The QC laboratory shall have provided QC and/or Quality Assurance (QA) testing of the proposed geomembrane and geomembrane seams for at least five completed projects having a total minimum area of 1 million square feet (93,000 square meters). The QC laboratory shall be accredited via the Geosynthetic Accreditation Institute's Laboratory Accreditation Program (GAI-LAP) for the tests the QC laboratory will be required to perform.

### 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-01 Data

Raw Materials; GA.

Manufacturer's certified raw material test reports and a copy of the QC certificates, a minimum of 30 calendar days prior to shipment of geomembrane to the site.

LNAPL Containment Geomembrane installation; GA

The plans for installation of the geomembrane shall be included in the Trench Installation Plan submitted in accordance with Section 02317 LNAPL COLLECTION TRENCH.

Sheet Material; GA.

Manufacturer's certified sheet material test reports and a copy of the QC certificates, a minimum of 30 calendar days prior to shipment of geomembrane to the site.

#### SD-04 Drawings

Record Drawings; GA.

Final Record Drawings of geomembrane installation

#### SD-06 Instructions

Tests, Inspections, and Verifications; GA.

Manufacturer's and fabricator's QC manuals, a minimum of 30 calendar days prior to geomembrane shipment.

Field Seaming; GA.

Installer's QC manual, a minimum of 30 calendar days prior to geomembrane placement.

SD-08 Statements

Qualifications; GA.

Manufacturer's, and fabricator's qualification statements, including resumes of key personnel involved in the project, a minimum of 30 calendar days prior to geomembrane shipment.

Installer's, QC inspector's, and QC laboratory's qualification statements including resumes of key personnel involved in the project, a minimum of 30 calendar days prior to geomembrane placement.

SD-09 Reports

Surface Preparation; GA.

Certification from the QC inspector and installer of the acceptability of the surface on which the geomembrane is to be placed, immediately prior to geomembrane placement.

Thickness Measurement; GA.

Test results of panel thickness measurement, certified by QC inspector.

Non-Destructive Field Seam Continuity Testing; GA.

QC inspector certified test results on all field seams.

Destructive Field Seam Testing; GA.

Installer and certified QC laboratory test results on all destructively tested field seams.

Destructive Seam Test Repairs; GA.

QC inspector certified test results on all repaired seams.

SD-14 Samples

Samples; GA.

Geomembrane QA and QC samples.

Tests; GA

Certified QC test results.

## 1.5 DELIVERY, STORAGE AND HANDLING

### 1.5.1 Delivery

The Contractor's QC inspector and the CO or the CO's QA representative shall be present during delivery and unloading of the geomembrane. Each geomembrane roll/panel shall be labeled with the manufacturer's name, product identification number, roll/panel number, and roll dimensions.

### 1.5.2 Storage

Temporary storage at the project site shall be on a level surface, free of sharp objects where water cannot accumulate. The geomembrane shall be protected from puncture, abrasion, excessive heat or cold, material degradation, or other damaging circumstances. Storage shall not result in crushing the core of roll goods or flattening of the rolls. Rolls shall not be stored more than two high. Palleted materials shall be stored on level surfaces and shall not be stacked on top of one another. The materials shall be covered with a sacrificial opaque and waterproof covering or placed in a temporary shelter. Damaged geomembrane shall be removed from the site and replaced with geomembrane that meets the specified requirements.

### 1.5.3 Handling

Rolls/panels shall not be dragged, lifted by one end, or dropped. A pipe or solid bar, of sufficient strength to support the full weight of a roll without significant bending, shall be used for all handling activities. The diameter of the pipe or solid bar shall be small enough to be easily inserted through the core of the roll. Chains shall be used to link the ends of the pipe or bar to the ends of a spreader bar. The spreader bar shall be wide enough to prevent the chains from rubbing against the ends of the roll. Alternatively, a stinger bar protruding from the end of a forklift or other equipment may be used. The stinger bar shall be at least three-fourths the length of the core and also must be capable of supporting the full weight of the roll without significant bending. If recommended by the manufacturer, a sling handling method utilizing appropriate loading straps may be used.

## 1.6 WEATHER LIMITATIONS

Geomembrane shall not be deployed or field-seamed in the presence of excess moisture (i.e., rain, fog, dew), in areas of ponded water, or in the presence of excess wind. Unless authorized by the CO, no placement or seaming shall be attempted at ambient temperatures below 32 degrees Fahrenheit (°F) (0 degrees Celsius [°C]) or above 104 °F (40 °C) . Ambient temperature shall be measured at a height no greater than 6 inches (15 centimeters [cm]) above the ground or geomembrane surface. If seaming is allowed below 32 °F, the

procedures outlined in GRI Test Meth GM-9 shall be followed. In marginal conditions, seaming shall cease unless destructive field seam tests, conducted by the QC laboratory, confirm that seam properties meet the requirements listed in Table 02379-1. Tests shall be conducted in accordance with Paragraph 3.6.2 Destructive Field Seam Testing.

**Table 02379-1**  
**HDPE SEAM PROPERTIES**

<b>Property</b>	<b>Test Value</b>	<b>Test Method</b>
Seam Shear Strength (min) (1)	172 lb/in (30.7 kg/cm)	Installer's approved procedure
Seam Peel Strength (min) (1) (2)	108 lb/in (19.3 kg/cm)	Installer's approved procedure

kg/cm - kilogram per centimeter

lb/in - pound per inch

Note (1): Seam tests for peel and shear must fail in the Film Tear Bond mode. This is a failure in the ductile mode of one of the bonded sheets by tearing or breaking prior to complete separation of the bonded area.

Note (2): Where applicable, both tracks of a double hot wedge seam shall be tested for peel adhesion.

## 1.7 EQUIPMENT

Equipment used in performance of the work shall be in accordance with the geomembrane manufacturer's recommendations and shall be maintained in satisfactory working condition.

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Raw Materials

Resin used in manufacturing geomembrane sheets shall be made of virgin uncontaminated ingredients. No more than 10 percent regrind, reworked, or trim material in the form of chips or edge strips shall be used to manufacture the geomembrane sheets. All regrind, reworked, or trim materials shall be from the same manufacturer and exactly the same formulation as the geomembrane sheet being produced. No post consumer materials or water-soluble ingredients shall be used to produce the geomembrane. For geomembranes with plasticizers, only primary plasticizers that are resistant to migration shall be used. The Contractor shall submit a copy of the test reports and QC certificates for materials used in the manufacturing of the geomembrane shipped to the site.

#### 2.1.2 Sheet Materials

Geomembrane sheets shall be unreinforced and manufactured to minimize factory and field seams. Geomembrane sheets shall be uniform in color, thickness, and surface texture. Sheets shall be smooth on both faces. The sheets shall be free of and resistant to fungal or

bacterial attack and free of cuts, abrasions, holes, blisters, contaminants and other imperfections. Geomembrane sheets and factory seams shall conform to the requirements listed in Table 02379-2 for Manufacturing Quality Control (MQC).

**Table 02379-2**  
**TEXTURED HDPE GEOMEMBRANE PROPERTIES**

<b>Property</b>	<b>Test Value</b>	<b>MQC Testing Frequency (min)</b>	<b>Test Method</b>
Thickness (min ave)	100 mils (2.5 mm)	per roll	ASTM D 5199
Lowest individual of 10 values	-10%	per roll	ASTM D 5199
Lowest individual of 10 values	-15%	per roll	ASTM D 5199
Density (min)	0.940 g/cc	per 200,000 lbs (90,700 kg) <sup>a</sup>	ASTM D 1505
Tensile Properties (1) (min ave)		per 20,000 lbs (9,070 kg) <sup>a</sup>	ASTM D 638 Type IV
-yield stress	215 lb/in (38.4 kg/cm)	NA	NA
-break stress	405 lb/in (72.3 kg/cm)	NA	NA
-yield elong	13%	NA	NA
-break elong	700%	NA	NA
Tear Resistance (min ave)	75 lbs (334 N)	per 45,000 lbs (20,400 kg) <sup>a</sup>	ASTM D 1004
Puncture Resistance (min ave)	198 lbs (881 N)	per 45,000 lbs (20,400 kg) <sup>a</sup>	ASTM D 4833
Stress Crack (2)	200 hr	per 200,000 lbs (90,700 kg) <sup>a</sup>	ASTM D 5397
Carbon Black Content	2.0-3.0%	per 20,000 lbs (9,070 kg) <sup>a</sup>	ASTM D 1603 (3)
Carbon Black Dispersion	Note (4)	per 45,000 lbs (20,400 kg) <sup>a</sup>	ASTM D 5596

ave - average

g/cc - gram per cubic centimeter

kg - kilogram

kg/cm - kilograms per centimeter

lbs - pounds

min - minimum

mm - millimeter

MQC - Manufacturing Quality Control

N - Newton

NA - not applicable

Note (1): Minimum average machine direction and minimum average cross machine direction values shall be based on 5 test specimens each direction. Yield elongation is calculated using a gauge length of 1.3 inches (3.3 cm). Break elongation is calculated using a gauge length of 2.0 inches (5 cm).

Note (2): The yield stress used to calculate the applied load for test method ASTM D 5397 (Appendix G), shall be the manufacturer's mean value.

Note (3): Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation to ASTM D 1603 can be established.

Note (4): Carbon black dispersion for 10 different views:  
- minimum 8 of 10 in Categories 1 or 2  
- all 10 in Categories 1,2, or 3

<sup>a</sup> Perform a minimum of one test



### 2.1.3 Factory Seams

Geomembrane sheets shall be factory seamed into maximum sized panels to minimize field seaming. The Contractor is responsible for its handling of geomembrane panels during placement and shall determine the size of panels that can be reasonably handled without damaging the geomembrane. Factory seaming shall be by methods approved by the geomembrane manufacturer. Seams shall meet the minimum shear and peel strength requirements shown in Table 02379-1. Factory seams shall extend to the end of the sheet so that no unbonded edges greater than 1/8-inch (3.2-millimeter) wide are present.

## 2.2 TESTS, INSPECTIONS, AND VERIFICATIONS

### 2.2.1 Manufacturing, Sampling, and Testing

#### 2.2.2.1 Raw Materials

Raw materials shall be tested in accordance with the approved MQC manual. Any raw material which fails to meet the geomembrane manufacturer's specified physical properties shall not be used in manufacturing the sheet. Seaming rods and pellets shall be manufactured of materials which are essentially identical to that used in the geomembrane sheet. Seaming rods and pellets shall be tested for density, melt index and carbon black content in accordance with the approved MQC manual. Seaming rods and pellets which fail to meet the corresponding property values required for the sheet material, shall not be used for seaming.

#### 2.2.2.2 Sheet Material

Geomembrane sheets shall be tested in accordance with the approved MQC manual. As a minimum, MQC testing shall be conducted at the frequencies shown in Table 02379-2. Sheets not meeting the minimum requirements specified in Table 02379-2 shall not be sent to the site.

## **PART 3 EXECUTION**

### 3.1 INSTALLATION

Installation of geomembrane in the LNAPL collection trench shall be performed in accordance with the CO approved trench installation plan as required by Section 02317 LNAPL COLLECTION TRENCH.

### 3.2 PREPARATION

#### 3.2.1 Preparation for Placement of LNAPL Containment Geomembrane

Placement preparation shall consist of checking that the trench is clean and open to full depth. A backhoe, sounding device, or other method acceptable to the CO shall be used to indicate that the trench is open at the time of placement. Any rocks, sharp debris, or other objects in the trench or trench sides that might cause damage to the geomembrane in the

opinion of the CO shall be removed from the trench prior to geomembrane installation. Each day during placement of geomembrane, the CO and installer shall inspect the surface on which geomembrane is to be placed and certify in writing that the surface is acceptable. Repairs to the trench sidewall shall be performed at no additional cost to the Government. In the event that the trench sidewalls are excessively rough so that the geomembrane would be damaged during installation, in the opinion of the CO contractor shall install vertical padding such as Styrofoam panels or heavy blankets against the trench sidewall to protect the geomembrane during installation.

### 3.2.2 Preparation for Placement of Geomembrane Over Trench Backfill

Placement of geomembrane over trench backfill shall consist of first placing a layer of nonwoven geotextile in accordance with Section 02373 SEPARATION/FILTRATION GEOTEXTILE. The trench backfill underlying the geotextile layer shall be prepared in accordance with Section 02317 LNAPL COLLECTION TRENCH.

### 3.3 GEOMEMBRANE DEPLOYMENT

The geomembrane may be installed as one panel or in sections. Only geomembrane that can be placed and backfilled the same day shall be installed. No geomembrane shall be left in the trench overnight without backfill adjacent to it. If installation is performed in sections, adjacent panels shall be overlapped a minimum of 5 feet (1.5 m). Overlaps shall be positioned such that the upper sheet in the overlap (in relation to the trench wall) is backfilled first to prevent material from intruding into the overlap.

The procedures and equipment used shall not elongate, wrinkle, scratch, or otherwise damage the geomembrane or underlying subgrade. Geomembrane damaged during installation shall be replaced or repaired, at the CO's discretion. Adequate ballast (i.e., trench drain rock) shall be placed on the geomembrane, without damaging the geomembrane, to hold the geomembrane in place against the downgradient trench wall.

#### 3.3.1 Thickness Measurement

A minimum of five thickness measurements shall be taken along the edge of each panel width and at least two thickness measurements shall be taken along each panel length. For nontextured geomembrane, thickness shall be measured in accordance with ASTM D 5199. For textured geomembrane, thickness shall be measured in accordance with ASTM D 5994. If thickness readings fall below the values specified in Table 02379-2 the entire panel shall be rejected and replaced.

### 3.4 FIELD SEAMING

#### 3.4.1 Trial Seams

If seams are used by the Contractor, trial seams shall be made under field conditions on strips of excess geomembrane. Trial seams shall be made each day prior to seaming. One sample shall be obtained from each trial seam. This sample shall be at least 36 inches (91 cm) long

by 20 inches (51 cm) wide with the seam centered lengthwise. Ten random specimens 1 inch (2.5 cm) wide shall be cut from the sample. Five seam specimens shall be field tested for shear strength and 5 seam specimens shall be field tested for peel adhesion using an approved quantitative tensiometer. Jaw separation speed shall be in accordance with the installer's approved QC manual. Where necessary, accelerated curing of trial seams made by chemical methods shall be conducted in accordance with GRI Test Meth GM-7. To be acceptable, 4 out of 5 replicate test specimens shall meet seam strength requirements specified in Table 02379-1. If the field tests fail to meet these requirements, the entire operation shall be repeated. If the additional trial seam fails, the seaming apparatus or seamer shall not be used until the deficiencies are corrected by the installer and 2 consecutive successful trial seams are achieved.

### 3.4.2 Field Seams

If seams are used by the Contractor, panels shall be seamed in accordance with the geomembrane manufacturer's recommendations. Seaming shall extend to the outside edge of panels. Wet surfaces shall be thoroughly dried and approved prior to seaming. The seam area shall be free of moisture, dust, dirt, and foreign material at the time of seaming. Fish mouths in seams shall be repaired.

#### 3.3.2.1 Polyethylene Seams

Polyethylene geomembranes shall be seamed by double hot wedge thermal fusion methods. Extrusion welding shall only be used for patching and seaming in locations where thermal fusion methods are not feasible. Seam overlaps that are to be attached using extrusion welds shall be ground prior to welding. Grinding marks shall be oriented perpendicular to the seam direction and no marks shall extend beyond the extrudate after placement. Extrusion welding shall begin within 10 minutes after grinding. Where extrusion welds are temporarily terminated long enough to cool, they shall be ground prior to applying new extrudate over the existing seam. The total depth of the grinding marks shall be no greater than 10 percent of the sheet thickness.

#### 3.3.2.2 Overlap Seams

Overlapping of seams during the construction shall be kept to a minimum. When required for constructability, a minimum of 4 feet (1.2 m) of overlap shall be used. The vertical panel being installed shall be placed between the overlap edge of the previously installed panel and the adjacent trench wall.

### 3.5 SAMPLES

One QC sample, 18 inches (46 cm) in length, for the entire width of a roll, shall be obtained for every 100,000 square feet (9,300 square meters) of material delivered to the site. A minimum of one sample shall be obtained. Samples shall not be obtained from the first three feet of the roll. For accordion folded geomembranes, samples of equivalent size shall be collected from approved locations. The samples shall be identified by manufacturer's name, product identification, lot and roll/panel number. The date, a unique sample number, and the

machine direction shall also be noted. In addition, a 12 by 12 inch (30 by 30 cm) QA sample shall be collected, labeled, and submitted to the CO each time QC samples are collected.

### 3.6 TESTS

The Contractor shall provide all CQC geomembrane samples to the approved CQC laboratory to determine density, specific gravity, thickness, tensile strength at break, elongation at break, and tear resistance in accordance with the methods specified in Table 02379-2. Samples not meeting the specified requirements shall result in the rejection of applicable rolls/panels.

#### 3.6.1 Nondestructive Field Seam Continuity Testing

Field seams shall be nondestructively tested for continuity over their full length in accordance with the installer's approved QC manual. Any seams which fail shall be documented and repaired in accordance with the installer's approved QC manual.

#### 3.6.2 Destructive Field Seam Testing

Destructive test samples of field seams shall be obtained at locations specified by the CO. Sample locations shall not be identified prior to seaming and will be identified at the CO's discretion. Samples shall be a minimum of 12 inches (30 cm) wide by 42 inches (107 cm) long with the seam centered lengthwise. Each sample shall be cut into 3 equal pieces, with one piece retained by the installer, one piece given to the approved CQC laboratory, and the remaining piece given to the CO for QA testing and/or permanent record. Each sample shall be numbered and cross referenced to a field log which identifies: (1) panel number; (2) seam number; (3) date and time cut; (4) ambient temperature within 6 inches above the geomembrane; (5) seaming unit designation; (6) name of seamer; and (7) seaming apparatus temperature and pressures (where applicable). Ten 1-inch (30-cm) wide replicate specimens shall be cut from the installer's sample. Five specimens shall be tested for shear strength and 5 for peel adhesion using an approved field quantitative tensiometer. Jaw separation speed shall be in accordance with the approved QC manual. To be acceptable, 4 out of 5 replicate test specimens shall meet the specified seam strength requirements in Table 02379-1. If the field tests pass, 5 specimens shall be tested at the QC laboratory for shear strength and 5 for peel adhesion in accordance with the QC laboratory's approved procedures. To be acceptable, 4 out of 5 replicate test specimens shall meet the specified seam strength requirements in Table 02379-1. If the field or laboratory tests fail, the seam shall be repaired in accordance with paragraph 3.7.1 Destructive Seam Test Repairs. Holes for destructive seam samples shall be repaired the same day they are cut.

### 3.7 DEFECTS AND REPAIRS

#### 3.7.1 Destructive Seam Test Repairs

Seams that fail destructive seam testing may be overlaid with a strip of new material and seamed (cap stripped). After cap stripping, the entire cap stripped seam shall be non-

destructively tested in accordance with paragraph 3.6.1 Nondestructive Field Seam Continuity Testing.

### 3.7.2 Patches

Tears, holes, blisters and other defects shall be repaired with patches. Patches shall have rounded corners, be made of the same geomembrane, and extend a minimum of 6 inches (15 cm) beyond the edge of defects. Minor localized flaws shall be repaired by spot welding or seaming as determined by the QC inspector. Repairs shall be non-destructively tested. The CO, his QA representative, or the CQC inspector may also elect to perform destructive seam tests on suspect areas.

## 3.8 VISUAL INSPECTION AND EVALUATION

Immediately prior to placement in the trench, the geomembrane, seams, and non-seam areas shall be visually inspected by the CQC inspector and CO for defects, holes, or damage due to weather conditions or construction activities. At the CO's or the CQC inspector's discretion, the surface of the geomembrane shall be brushed, blown, or washed by the installer if the amount of dust, mud, or foreign material inhibits inspection or functioning of the overlying material. Each suspect location shall be nondestructively tested in accordance with paragraph 3.6.1 Nondestructive Field Seam Continuity Testing. Each location that fails nondestructive testing shall be repaired in accordance with paragraph 3.7.2 Patches and nondestructively retested.

## 3.9 PENETRATIONS (NOT USED)

## 3.10 PROTECTION AND BACKFILLING

The deployed LNAPL containment geomembrane shall be placed in the trench and backfilled with the specified material the same day of acceptance. Wrinkles in the geomembrane shall be prevented from folding over during placement of trench backfill materials. Trench backfill materials shall not be dropped onto or adjacent to the geomembrane from a height greater than 3 feet (0.91 m). Tremie methods shall be used to place all trench drain rock materials in the trench. Tremie methods shall be used to help protect the geomembrane from puncture and to reduce separation of aggregates in the trench drain rock during placement. Trench backfill placed above the trench drain rock does not require tremie placement.

Maximum diameter of the tremie trunk shall be 18 inches (46 cm). The trunk shall be made of material that will not cause damage to the geomembrane upon contact. During placement, the tremie hopper shall be kept from contact with the geomembrane. During drain rock placement, the base of the tremie trunk shall be kept no more than 1 foot (30 cm) above the advancing level of the drain rock.

### 3.11 RECORD DRAWINGS

Final record drawings of geomembrane installation shall be prepared and submitted in accordance with Section 01780 RECORD DRAWINGS. These drawings shall include panel numbers, seam numbers, location of repairs, destructive seam samples, and penetrations.

**END OF SECTION**

## **SECTION 02510**

### **WATER SUPPLY LINE**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent version of the reference applies.

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM D 2104	(1996) Polyethylene (PE) Plastic Pipe, Schedule 40
ASTM D 2239	(1999) Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter
ASTM D 2447	(1999) Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter
ASTM D 2609	(1997) Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe
ASTM D 2683	(1998) Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing
ASTM D 2737	(1999) Polyethylene (PE) Plastic Tubing
ASTM D 2774	(1994) Underground Installation of Thermoplastic Pressure Piping
ASTM D 3035	(1995) Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter
ASTM D 3261	(1997) Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
ASTM D 3350	(1996) Polyethylene Plastics Pipe and Fittings Materials
ASTM F 714	(1997) Polyethylene (PE) Plastic Pipe (SDR-PR) Based On Outside Diameter
ASTM F 1055	(1998) Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene Pipe and Tubing

ASTM F 1056 (1997) Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings

ASME INTERNATIONAL (ASME)

ASME A112.1.2 (1991; R 1998) Air Gaps in Plumbing Systems

ASME B1.20.1 (1983; R 1992) Pipe Threads, General Purpose (Inch)

ASME B16.3 (1992) Malleable Iron Threaded Fittings

ASME B16.11 (1996) Forged Fittings, Socket-Welding and Threaded

ASME B16.34 (1997) Valves - Flanged, Threaded, and Welding End

AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) FOR PLUMBING  
AND SANITARY RESEARCH

ASSE 1003 (1995) Water Pressure Reducing Valves for Domestic Water Supply Systems

ASSE 1011 (1995) Hose Connection Vacuum Breakers

ASSE 1012 (1995) Backflow Preventers with Intermediate Atmospheric Vent

ASSE 1013 (1993) Reduced Pressure Principle Backflow Preventers

ASSE 1015 (1993) Double Check Backflow Prevention Assembly

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA B300 (1992) Hypochlorites

AWWA B301 (1992) Liquid Chlorine

AWWA C651 (1992) Disinfecting Water Mains

AWWA C800 (1989) Underground Service Line Valves and Fittings

AWWA C901 (1996) Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. Through 3 In., for Water Service

MANUAL M-14 Manual of Cross Connection

FCCCHR-1 Foundation for Cross-Connection Control & Hydraulic Research Test Methods for Backflow Preventors



MANUFACTURERS STANDARDIZATION SOCIETY (MSS) OF THE  
VALVE AND FITTINGS INDUSTRY

MSS SP-58 (1993) Pipe Hangers and Supports - Materials, Design and Manufacture

MSS SP-69 (1996) Pipe Hangers and Supports - Selection and Application

MSS SP-80 (1997) Bronze Gate, Globe, Angle and Check Valves

NATIONAL ASSOCIATION OF PLUMBING-HEATING-COOLING CONTRACTORS  
(NAPHCC)

NAPHCC Code Plumbing Code

NSF INTERNATIONAL (NSF)

NSF 14 (1998) Plastics Piping Components and Related Materials

NSF 61 (1999) Drinking Water System Components - Health Effects  
(Sections 1-9)

## 1.2 SYSTEM DESCRIPTION

This section describes specifications and performance requirements for installation of a new water line to the site utility pad shown the Drawings. The water line is designed to provide potable water to the utility pad. The water line constructed from 2-inch-diameter (7.9-millimeter [mm]) polyethylene (PE) pipe shall be connected to a new ¾-inch (3.0 mm) water meter supplied and installed by the city of Astoria. The Contractor shall make all arrangements with the city of Astoria for the installation of the new meter including completion of any necessary service application, permits, and fees. The water line shall be run underground from the meter in an independent trench to a location on the proposed utility pad located near the entrance to the Tongue Point Landfill site (Site) as shown on the Drawings. The Contractor shall provide all materials, equipment, and labor needed to install utilities in accordance with the Drawings.

The water line shall have a shut-off valve, pressure regulator, and backflow preventor installed on or near the limits of the pad. In addition, the Contractor shall install a valve box with shutoff valve within 10 feet from the city water meter. The new water meter will be installed near Pier 2 (see Drawings) at the existing 12 by 4 inch (47 by 16 mm) reducing Tee. Pressure gauges shall be installed before and after each piece of equipment listed above.

### 1.2.1 Performance Requirements

The water supply line shall conform to manufacturer's instructions and the Uniform Plumbing Code with special Oregon Amendments. The pressure ratings and materials specified represent minimum acceptable standards for the water line. The piping systems

shall be suitable for the services specified and intended. The pipe, valves, fittings, and appurtenances shall have a pressure rating no less than that required for the system in which they are installed. The Contractor shall have a copy of the manufacturer's recommendations for each material or procedure to be utilized available at the Site at all times.

#### 1.2.2 Potable Water Lines

Piping and components of potable water systems, which come in contact with the potable water, shall conform to NSF 61.

#### 1.2.3 Plastic Piping System

Piping for the water supply line shall be PE Pipe unless otherwise shown or specified. Plastic piping system components including polyethylene intended for transportation of potable water shall comply with NSF 14 and be legibly marked with their symbol.

#### 1.2.4 Excavation, Trenching, and Backfilling

Excavation, trenching, and backfilling shall be in accordance with the applicable provisions of Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS, except as modified herein.

### 1.3 MANUFACTURER'S REPRESENTATIVE

The Contractor shall have a manufacturer's field representative present at the Site during the installation and testing of PE pipe to provide technical assistance and to verify that the materials are being installed in accordance with the manufacturer's prescribed procedures. When the representative is satisfied that the Contractor is installing and testing the PE pipe in a satisfactory manner, certification shall be written to note which individuals employed by the Contractor are capable of properly installing the pipe. The field representative shall advise the Contractor of unsatisfactory conditions immediately when they occur.

### 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals not having a "GA" designation are for information only (FIO). The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product Data

Installation; FIO.

The manufacturer's recommendations for each material or procedure to be utilized.

SD-09 Reports

Waste Water Disposal Method; GA.

The method proposed for disposal of waste water from hydrostatic tests and disinfection, prior to performing hydrostatic tests.

#### SD-06 Test Reports

Bacteriological Disinfection; GA.

Test results from commercial laboratory verifying disinfection.

Backflow Prevention Assembly Tests; GA.

Certification of proper operation shall be as accomplished in accordance with state regulations by an individual certified by the state to perform such tests. If no state requirement exists, the Contractor shall have the manufacturer's representative test the device, to ensure the unit is properly installed and performing as intended. The Contractor shall provide written documentation of the tests performed and signed by the individual performing the tests.

#### SD-07 Certificates

Manufacturer's Representative; FIO.

The name and qualifications of the manufacturer's representative and written certification from the manufacturer that the representative is technically qualified in all phases of PE pipe laying and jointing and experienced to supervise the work and train the Contractor's field installers, prior to commencing installation.

Plastic Piping System; GA.

Documentation certifying that the manufacturer of each thermoplastic piping system is listed with the Plastic Pipe Institute as meeting the recipe and mixing requirements of the resin manufacturer for the resin used to manufacture each of the respective thermoplastic pipe systems.

Installation; GA.

A statement signed by the manufacturer's field representative certifying that the Contractor's personnel are capable of properly installing the pipe on the project.

Satisfactory Installation; GA.

A statement or certificate signed by the principal officer of the contracting firm stating that the installation is satisfactory and in accordance with the Drawings and specifications, and the manufacturer's prescribed procedures and techniques, upon completion of the project and before final acceptance.

## 1.5 GENERAL JOB REQUIREMENTS

Piping materials and appurtenances shall be as specified and as shown on the Drawings, and shall be suitable for the service intended. Piping materials, appurtenances and equipment supplied as part of this contract shall be new and unused except for testing equipment. Components that serve the same function and are the same size shall be identical products of the same manufacturer.

## 1.6 HANDLING

Pipe and accessories shall be handled to ensure delivery to the trench in sound, undamaged condition. If the pipe or fittings are damaged, the repair shall be made by the Contractor in a satisfactory manner, at no additional cost to the Government. Pipe shall be carried into position and not dragged. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Government. Rubber gaskets that are not to be installed immediately shall be stored in a cool and dark place.

### 1.6.1 Polyethylene (PE) Pipe Fittings and Accessories

PE pipe, fittings, and accessories shall be handled in conformance with AWWA C901.

## 1.7 PROJECT/SITE CONDITIONS

### 1.7.1 Existing Conditions

The Contractor shall be responsible for the verification of existing piping and penetrations. Prior to ordering materials, the Contractor shall confirm all existing pipes, which are to be connected to new pipelines, this shall include exposure if necessary. The Contractor shall verify the size, material, joint types, elevation, horizontal location, and pipe service of existing pipes, and inspect size and location of structure penetrations to verify adequacy of wall sleeves, and other openings before installing connecting pipes.

### 1.7.2 Verification of Dimensions

After becoming familiar with all details of the work, the Contractor shall verify all dimensions in the field, and shall advise the Contracting Officer (CO) of any discrepancy before performing the work.

## **PART 2 PRODUCTS**

Material or equipment containing lead shall not be used in any potable water system.

### **2.1 PIPE**

Pipe shall conform to the respective specifications and other requirements specified below. PE pipe shall be used for the water supply line.

#### **2.1.1 Polyethylene (PE) Pipe**

Pipe, and heat-fusion fittings shall conform to AWWA C901. The pipe shall be extruded from PE, ASTM D 3350 with a minimum cell classification of 324433-C. The PE pipe shall be manufactured to an SDR rating in accordance with ASTM D 3035. The pressure rating of the pipe shall be consistent for all pipe sizes. The pipe shall be SDR 11 with a pressure rating of 160 pounds per square inch gauge (psig) (1.10 Mega-Pascal [Mpa]) at 73 degrees Fahrenheit (°F) (23 degrees Celsius [°C]). Pipe to be as manufactured by Chevron Plexco PE 3408 and supplied by Familian Industrial Plastics, Washougal, Washington (360-835-2129), or equivalent.

#### **2.1.2 PE Joints**

PE pipe shall be joined by thermal butt-fusion, socket heat fusion and/or socket electrofusion, except where connecting to valves and equipment that may require future disassembly, then joints shall be threaded fittings.

Joints for pipe fittings and couplings shall be strong tight joints as specified for PE in Paragraph 3.1 INSTALLATION AND PREPARATION. Joints connecting pipe of differing materials shall be made in accordance with the manufacturer's recommendation, and as approved by the CO.

#### **2.1.3 PE Fittings**

PE fittings shall have the same or higher pressure rating as the pipe when installed in accordance with the latest technical specifications. PE fittings shall be molded. Butt-fusion fittings shall conform to ASTM D 3261. Socket-fusion fittings shall conform to ASTM D 2683 with tools meeting the requirements of ASTM F 1056. Insert fittings shall conform to ASTM D 2609. Couplings and saddle joints shall be joined by electrofusion in accordance with ASTM F 1055.

### **2.2 FITTINGS AND SPECIALS**

#### **2.2.1 Dielectric Fittings**

Dielectric fittings shall be installed between threaded ferrous and nonferrous metallic pipe, fittings and valves. Dielectric fittings shall prevent metal-to-metal contact of dissimilar metallic piping elements and shall be suitable for the required working pressure.

## 2.3 VALVES

### 2.3.1 Gate Valves

Gate valves shall be designed for a working pressure of not less than 150 pounds per inch (psi) (1.03 MPa). Valve connections shall be as required for the piping in which they are installed. Valves shall have a clear waterway equal to the full nominal diameter of the valve, and shall be opened by turning counterclockwise. The operating nut or wheel shall have an arrow, cast in the metal, indicating the direction of opening.

Valves shall be all bronze and shall conform to MSS SP-80, Type 1, Class 150. Gate valves, shall have bronze bodies and stems, screwed or union bronze bonnets, single solid wedge bronze discs, and non-rising stems. Valves shall conform to ASME B16.34. End connections shall be ASME B16.11 threaded. Valves shall be equipped with handwheel for operators.

### 2.3.2 Pressure Reducing Valves

Pressure reducing valves shall maintain a constant downstream pressure regardless of fluctuations in demand and conform to ASSE 1003. Valves shall be suitable for 150 psi (1.03 MPa) operating pressure on the inlet side, and be able to adjust outlet pressures to between 30 and 70 psi. The valves shall be of the hydraulically operated, pilot controlled type and may be actuated either by diaphragm or piston. The pilot control shall be the adjustable type and designed to permit flow when controlling pressure exceeds the spring setting. Ends shall be threaded 1 inch diameter National Pipe Thread (NPT), female. Valve bodies shall be bronze. Valve stem shall be stainless steel. The valve shall be provided with a built in stainless steel strainer and a pressure gauge port. Watts Model 25 AUB-G as supplied by USA Bluebook (800-548-1234) or equivalent.

## 2.4 BACKFLOW PREVENTERS

Backflow preventers shall be approved and listed by the Foundation for Cross-Connection Control & Hydraulic Research (FCCCHR). Reduced pressure principle assemblies, double check valve assemblies, and pressure type vacuum breakers shall be tested, approved, and listed in accordance with FCCCHR-01. Backflow preventers with intermediate atmospheric vent shall conform to ASSE 1012. Reduced pressure principle backflow preventers shall conform to ASSE 1013. Hose connection vacuum breakers shall conform to ASSE 1011. Air gaps in plumbing systems shall conform to ASME A112.1.2.

Backflow preventer shall open to permit flow when inlet pressure is greater than the discharge pressure, and shall close tightly to prevent return flow when discharge pressure exceeds inlet pressure. The size of the valve, working pressure, manufacturer's name, initials, or trademark shall be cast on the body of the preventer.

#### 2.4.1 Double Check Valve Assembly

The backflow preventer shall consist of two check valves independently operating, spring loaded rated for 175 psig (1.25 MPa) service at 140 degrees F (60 degrees C), with two full port isolation ball valves and four resilient seat ball valve testing cocks. Port size shall be 1 inch (25 millimeter [mm]) and be ASME B1.20.1 threaded, female. The assembly shall meet the requirements of ASSE 1015. A strainer shall be included with the Double Check Valve Assembly. Watts Series 007, 1 inch (25 mm) as supplied by USA Bluebook (800-548-1234) or equivalent.

#### 2.5 VALVE BOXES

Valve boxes shall be cast iron, lightweight polymer or concrete, except that concrete and polymer boxes may be installed only in locations not subjected to vehicular traffic. Cast-iron boxes shall be extension type with slide-type adjustment and with flared base. The minimum thickness of metal shall be 3/16 inch (5 mm). Concrete boxes shall be the standard product of a manufacturer of precast concrete equipment complete with identifying covers. The word "WATER" shall be cast in the cover. The box length shall adapt, without full extension, to the depth of cover required over the pipe at the valve location. Valve boxes shall be provided with either screw or slide-type adjustment. The boxes shall have housings of sufficient size to completely cover the valve. Oldcastle precast as supplied by Utility Vault Company, Auburn, WA, 800-892-1538 polymer hand holes or equivalent.

#### 2.6 BACKFLOW PREVENTER VAULT

The backflow preventer vault shall be of sufficient size to encompass the backflow preventer, pressure regulator and shutoff valve. Oldcastle precast 4 feet by 6 feet (1.2 meters by 1.8 meters) utility vault or equivalent.

#### 2.7 MISCELLANEOUS ITEMS

##### 2.7.1 Disinfection

Chlorinating materials shall conform to the following:

Chlorine, Liquid: AWWA B301

Hypochlorite, Calcium and Sodium: AWWA B300

##### 2.7.2 Pressure Gauges

Pressure gauges shall be stem mounted, with stainless steel cases with silicon or glycerine-filled dials. The gauge sensors shall be C-Type Bourdon tube or helical Bourdon tube actuated and constructed of phosphor bronze, stainless steel, or beryllium-copper. The gauges shall be equipped with brass or TP316L stainless steel threaded 0.25-inch (1-mm) male NPT connections. The dials of the gauges shall be between 2.5 inches (10 mm) and 4.5 inches

(18 mm) in diameter with scale readings in MPa and pounds per square inch ranging from zero to approximately twice the anticipated process operating or equipment pressure.

## **PART 3 EXECUTION**

### **3.1 INSTALLATION AND PREPARATION**

#### **3.1.1 Protection**

Pipe and equipment openings shall be closed with caps or plugs during installation. Equipment shall be protected from dirt, water, and chemical or mechanical damage. Pipe and fittings shall be inspected before exposed piping is installed or buried piping is lowered into the trench. The Contractor shall clean the ends of pipes thoroughly, remove foreign matter and dirt from inside of pipes, and keep piping clean during and after laying.

#### **3.1.2 Plastic Pipe Installation**

PE pipe shall be installed underground in accordance with ASTM D 2774. Plastic pipe shall be cut, fabricated, and installed in strict conformance with the pipe manufacturer's recommendations. Offset loops from the trench centerline shall be as recommended by the manufacturer for the maximum temperature variation between the installation pipe temperature at the time of fusion and operating temperature. Flexible plastic pipe connected to heavy fittings, or rigid structures shall be supported in such a manner that no subsequent relative movement between the plastic pipe at the fitting or the rigid structures is possible. Thrust blocking shall not be used for flexible plastic piping. The piping shall be designed and installed to withstand the compression and expansion forces imposed by the trench conditions.

All plastic pipe shall be cut, made up, and installed in accordance with the pipe manufacturer's recommendations. Heat joining shall be performed in accordance with ASTM D 3261. Electrofusion joining shall be performed in accordance with ASTM F 1055. PE pipe shall not be threaded except as otherwise specified. Threaded nipple adapters shall be used where necessary to connect to threaded valves or fittings. Strap wrenches shall be used for tightening threaded plastic joints, and care shall be taken not to over-tighten these fittings. Pipe shall not be laid when the temperature is below 40.1 °F (4.5 °C), nor above 90 °F (32 °C) when exposed to direct sunlight. Any plastic pipe installed above grade and outdoors shall be ultraviolet (UV) protected or UV resistant. The pipe ends that are to be joined shall be shielded from direct sunlight prior to and during the laying operation. If necessary the Contractor shall provide and install supports and hangers in accordance with the manufacturer's recommendations.

##### **3.1.2.1 Placing and Laying**

Pipe and accessories shall be carefully lowered into the trench by means of derrick, ropes, belt slings, or other authorized equipment. Water-line materials shall not be dropped or dumped into the trench. Abrasion of the pipe shall be avoided. The full length of each



section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate couplings, and joints. Pipe that has the grade or joint disturbed after laying shall be taken up and relaid. Pipe shall not be laid in water or when trench conditions are unsuitable for the work. Water shall be kept out of the trench until joints are complete. When work is not in progress, open ends of pipe, fittings, and valves shall be securely closed so that no trench water, earth, or other substance will enter the pipes or fittings. Where any part of the pipe is damaged, the repair shall be made by and at the Contractor's expense in a satisfactory manner.

#### 3.1.2.2 Piping Expansion Provisions

Where plastic pipe is subjected to severe temperature fluctuations, provisions for expansion and contraction must be provided. This shall be accomplished with the use of offset piping arrangements. The piping shall be installed to allow for thermal expansion resulting from the difference between installation and operating temperatures. Other expansion devices if needed shall be installed in accordance with the manufacturer's instructions.

#### 3.1.2.3 Cutting of Pipe

Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Unless otherwise recommended by the manufacturer and authorized by the CO, cutting shall be done with an approved type mechanical cutter.

#### 3.1.3 Connecting Dissimilar Pipe

Flexible transition couplings, dielectric fittings and isolation joints shall be installed in accordance with the manufacturer's instructions and the Uniform Plumbing Code with special Oregon Amendments.

#### 3.1.4 Adjacent Facilities

##### 3.1.4.1 Sewer Lines

Where the location of the water pipe is not clearly defined in dimensions on the Drawings, the water pipe shall not be laid closer horizontally than 10 feet (3 m) from an existing sewer line. However, where the bottom of the water pipe will be at least 12 inches (300 mm) above the top of the sewer pipe, the water pipe shall not be laid closer horizontally than 6 feet (1.8 m) from the sewer. Where water lines cross under gravity-flow sewer lines, the sewer pipe, for a distance of at least 10 feet (3 m) each side of the crossing, shall be fully encased in concrete or shall be made of pressure pipe with no joint located within 3 feet (900 mm) horizontally of the crossing. Water lines shall in all cases cross above sewage force mains or inverted siphons and shall be not less than 12 inches (300 mm) above the sewer main. Joints in the sewer main, closer horizontally than 3 feet (900 mm) to the crossing, shall be encased in concrete.

### 3.1.4.2 Other Lines

Water lines shall not be laid in the same trench with gas lines, fuel lines, telephone or electric wiring.

### 3.1.5 Jointing

#### 3.1.5.1 PE Piping Connections

Jointing shall comply with ASTM D 3261, Technique I-Socket Fusion or Technique II-Butt Fusion. Where connections are made between new work and existing mains, the connections shall be made by using specials and fittings to suit the actual conditions. When made under pressure, these connections shall be installed using standard methods as approved by the CO.

#### 3.1.5.2 Joint Deflection

Maximum offset in alignment between adjacent pipe joints shall be as recommended by the manufacturer and approved by the CO, but shall not exceed 5 degrees.

#### 3.1.5.3 Isolation Joints and Dielectric Fittings

Isolation joints and dielectric fittings shall be installed in accordance with manufacturer's recommendations.

#### 3.1.5.4 Transition Fittings

Connections between different types of pipe and accessories shall be made with transition fittings approved by the CO.

### 3.1.6 Valve Installation

Threaded ends shall have the threads cleaned by wire brushing or swabbing prior to installation.

#### 3.1.6.1 Location of Valves

After delivery, valves, shall be drained to prevent freezing and shall have the interiors cleaned of all foreign matter before installation. Backflow preventer and pressure reducing valves shall be installed in a valve pit or vault near the utility pad. Valves and valve boxes shall be installed where shown or specified, and shall be set plumb. Valve boxes shall be centered on the valves. Boxes shall be installed over each outside gate valve unless otherwise shown. Where feasible, valves shall be located outside the area of the haul road or other traffic areas.. Earth fill shall be tamped around each valve box or pit to a distance of 4 feet (1.2 m) on all sides of the box, or the undisturbed trench face if less than 4 feet (1.2 m). If valve wrenches are necessary to operate a valve, three wrenches shall be provided by the contractor.

### 3.1.6.2 Operator Extension Stems

Where the depth of the valve is such that its centerline is more than 3 feet (925 mm) below grade, an operator extension stem shall be furnished with a 2 inch (50 mm) operating nut to bring the operating nut to a point 5.9 inches (150 mm) below the surface of the ground and/or box cover. The operating nut shall be located in a floor box.

### 3.1.7 Backflow Prevention Devices

Backflow preventer shall be installed with nameplate and test cocks accessible from front of unit, and with a minimum clearance of 12.2 inches (310 mm ) between the port and grade. The assemblies shall be installed in accordance with local codes and shall discharge to an open drain with an air gap; vertical installation is prohibited.

Plumbing fixtures, equipment, and pipe connections shall not cross connect or interconnect between a potable water supply and any source of nonpotable water. Backflow preventers shall be installed where indicated and in accordance with NAPHCC Plumbing Code at all other locations necessary to preclude a cross-connect or interconnect between a potable water supply and any nonpotable substance. In addition, backflow preventers shall be located so that no part of the device will be submerged. Backflow preventers shall be of sufficient size to allow unrestricted flow of water to the equipment, and preclude the backflow of any nonpotable substance into the potable water system. Bypass piping shall not be provided around backflow preventers. Access shall be provided for maintenance and testing. Each device shall be a standard commercial unit.

### 3.1.8 Piping Support Systems Installation

The absence of pipe supports and details on the Drawings shall not relieve the Contractor of responsibility for sizing and providing supports if necessary to conform to manufactures recommendations and site conditions.

#### 3.1.8.1 General Support Requirements

Pipe support systems shall meet the requirements of MSS SP-58. Contractor-designed and selected support systems shall be installed in accordance with MSS SP-69, and as specified herein. Piping connections to equipment shall be supported by pipe supports and not off the equipment. Large or heavy valves, fittings, and/or equipment shall be supported independently of associated piping. Pipes shall not be supported off other pipes. Supports shall be provided at piping changes in direction or in elevation, adjacent to flexible joints and couplings, and where otherwise shown on the Drawings.

### 3.1.9 Excavation and Backfilling

Earthwork shall be performed as specified in Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. Backfilling shall be accomplished after inspection by the CO. The Contractor shall exercise care when lowering pipe into the trench to prevent damage or twisting of the pipe.

#### 3.1.9.1 Marking Tape and Tracer

Pipe marking tape shall be provided and installed in accordance with the requirements of Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. In addition, the Contractor shall install a 12-gauge copper wire for future tracing of pipe position, as shown on the Drawings. Tracer wire shall be continuous without splices. The Contractor shall confirm continuity of tracer wire prior to acceptance of work. Tracer wire shall be looped to reach surface at the meter box and Backflow Preventer Vault.

#### 3.1.10 Pressure Gauge Installation

Pressure gauges shall be installed where indicated on the Drawings.

### 3.2 HYDROSTATIC TESTS

#### 3.2.1 Pressure Test

After the pipe is laid, the joints completed, valves permanently installed and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping or any valved section of piping shall, unless otherwise specified, be subjected for 1 hour to a hydrostatic pressure test of 150 psi (1.03 MPa).

#### 3.2.2 Pressure Testing of Utility Piping

- a. Pressure tests shall be performed in accordance with manufacturer's recommendations for the water supply line and unused conduit. Pipe shall be pressure tested with water in accordance with the manufacturer's recommendations, and other requirements of this Section. The pipe should be covered or otherwise supported at intervals to hold it in place during pressure tests.
- b. After end sections are plugged or capped all free air is removed from the test section, raise the pressure at a steady rate at 25 psi increments to a test pressure equal to 150 psi (1.03 MPa).
- c. Thermal expansion may cause pressure changes during the initial testing. Following an equilibration period of 1 hour, adjust the piping pressure back to the test pressure and monitor this pressure for an additional hour.
- d. Pressure drop may continue to occur during the pressure testing. "Make up" water may be required to return the section to test pressure. An allowable amount of "Make up" water for a satisfactory test will be 0.1 U.S. gallons per 100 feet of pipe for the 1-hour test.
- e. All pipes, fittings, and valves shall be subject to the pressure test. The following items shall be removed from the pipe, or isolated from pressure during the pressure test:

regulators, valves, flex hoses, gauges, controls, instruments or equipment that would be damaged as a result of the pressure test.

- f. Each valve shall be opened and closed several times during the test after the pressure test requirements have been met. Exposed pipe, joints, fittings, and valves shall be carefully examined during the partially open trench test.
- g. Joints showing visible leakage shall be replaced or remade as necessary. Cracked or defective pipe, joints, fittings, and valves discovered in consequence of this pressure test shall be removed and replaced with sound material, and the test shall be repeated until the test results are satisfactory.
- h. The requirement for the joints to remain exposed for the hydrostatic tests may be waived by the CO when one or more of the following conditions is encountered:
  - 1. Wet or unstable soil conditions in the trench.
  - 2. Compliance would require maintaining barricades and walkways around and across an open trench in a heavily used area that would require continuous surveillance to assure safe conditions.
  - 3. Maintaining the trench in an open condition would delay completion of the project.

The Contractor may request a waiver, setting forth in writing the reasons for the request and stating the alternative procedure proposed to comply with the required hydrostatic tests.

- i. The Contractor is responsible for all equipment and materials required to complete the test.
- j. When pressure testing, extreme caution shall be used when working around the pipe being tested. Adequate barricade and safety precautions must be used to protect people and property. Support piping as necessary to prevent displacement in the event of test failure.
- k. The piping network may be tested in sections or as an entire assembly at the Contractor's discretion. All pipes or joints disconnected for testing purposes shall be reconnected using proven joining techniques.
- l. The Contractor shall provide all temporary plugs, flanges or other sealing devices needed for the pressure testing.
- m. Provide suitable notification and access so that all testing may be witnessed by the CO or his QA representative, unless other arrangements have been made in advance and in writing.

### 3.2.3 Displacement of Sewer (Not Used)

### 3.2.4 Leakage Test

Leakage test shall be conducted after the pressure tests have been satisfactorily completed. The duration of each leakage test shall be at least 2 hours, and during the test the water line shall be subjected to not less than 150 psi (1.03 MPa) pressure. Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section, necessary to maintain pressure within 5 psi (34.5 kPa) of the specified leakage test pressure after the pipe has been filled with water and the air expelled. Piping installation will not be accepted if leakage exceeds the allowable leakage which is determined by the following formula:

$$L = 0.0001351 \ N \times D \times (P \text{ raised to } 0.5 \text{ power})$$

where:

L = Allowable leakage in gallons per hour

N = Number of joints in the length of pipeline tested

D = Nominal diameter of the pipe in inches

P = Average test pressure during the leakage test, in psi gauge

Should any test of pipe disclose leakage greater than that calculated by the above formula, the defective joints shall be located and repaired until the leakage is within the specified allowance, without additional cost to the Government.

### 3.2.5 Time for Making Test

Except for joint material setting or where concrete thrust blocks necessitate a 5 calendar day delay, pipelines jointed with rubber gaskets, mechanical or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill.

### 3.2.6 Testing New to Existing Connections

New piping connected to existing pipe shall be tested. The Contractor shall isolate the new piping with pipe caps, spectacle blinds, or blind flanges. The joint between new piping and existing piping shall be tested by methods that do not place the entire existing system under the test load. The Contractor shall then proceed with the testing of new piping systems as specified herein.

### 3.2.7 Concurrent Hydrostatic Tests

The Contractor may elect to conduct the hydrostatic tests using either or both of the following procedures. Regardless of the sequence of tests employed, the results of pressure tests, leakage tests, and disinfection shall be as specified. Replacement, repair or retesting required shall be accomplished by the Contractor at no additional cost to the Government.

- a. Pressure test and leakage test may be conducted concurrently.
- b. Hydrostatic tests and disinfection may be conducted concurrently, using the water treated for disinfection to accomplish the hydrostatic tests. If water is lost when treated for disinfection and air is admitted to the unit being tested, or if any repair procedure results in contamination of the unit, disinfection shall be reaccomplished.

### 3.2.8 Test of Backflow Prevention Assemblies

Backflow prevention assembly shall be tested using gauges specifically designed for the testing of backflow prevention assemblies. Gauges shall be tested annually for accuracy in accordance with the University of Southern California's Foundation of Cross-Connection Control and Hydraulic Research or the American Water Works Association Manual of Cross Connection (Manual M-14). Report form for each assembly shall include, as a minimum, the following:

- a. Data on device
- b. Type of assembly
- c. Manufacturer
- d. Model number
- e. Serial number
- f. Size
- g. Location
- h. Test pressure readings
- i. Data on testing firm
- j. Name
- k. Address
- l. Certified tester
- m. Certified tester number
- n. Date of test
- o. Serial number and test data of gauges

If the unit fails to meet specified requirements, the unit shall be repaired and retested.

## 3.3 FINAL CLEANING

The installed water supply line shall pass water purity/bacteriological disinfection tests prior to the Contractor connecting the line to the existing city water supply system.

### 3.3.1 Interim Cleaning

The Contractor shall prevent the accumulation of pipe cuttings and filings, gravel, cleaning rags, and other foreign material within piping sections during fabrication. The piping shall be examined to assure removal of these and other foreign objects prior to assembly and installation.

### 3.3.2 Flushing

Following assembly and testing, and prior to final acceptance, piping systems shall be flushed with water to remove accumulated construction debris and other foreign matter. The piping shall be flushed until all foreign matter is removed from the pipeline. The Contractor shall provide all hoses, temporary pipes, ditches, and other items as required to properly dispose of flushing water without damage to adjacent properties. The minimum flushing velocity shall be 2.5 feet per second (fps) (0.76 m/s). Cone strainers shall be installed in the flushing connections of attached equipment and left in place until cleaning is completed. Accumulated debris shall be removed through drains, or by removing spools or valves. If the trench was filled with water prior to pipe installation, Contractor shall use a pig in the line prior to flushing.

### 3.3.3 Bacteriological Disinfection

Before acceptance of potable water operation, each unit of completed waterline shall be disinfected as prescribed by AWWA C651. After pressure tests have been made, the unit to be disinfected shall be thoroughly flushed with water until all entrained dirt and mud have been removed before introducing the chlorinating material. The chlorinating material shall be either liquid chlorine, calcium hypochlorite, or sodium hypochlorite, conforming to paragraph 2.7 MISCELLANEOUS ITEMS. The chlorinating material shall provide a dosage of not less than 50 parts per million (ppm) and shall be introduced into the water lines in an approved manner. The agent shall not be introduced into the line in a dry solid state. The treated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. Except where a shorter period is approved by CO, the retention time shall be at least 24 hours and shall produce not less than 25 ppm of free chlorine residual throughout the line at the end of the retention period.

Valves on the lines being disinfected shall be opened and closed several times during the contact period. The line shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm. During the flushing period, each valve on the line shall be opened and closed several times. From the termination point of the line the CO and/or Local health department official will take samples of water in proper sterilized containers for bacterial examination. At least three samples shall be submitted to a government or commercial laboratory, approved by the CO, in proper sterilized containers and perform a bacterial examination in accordance with state approved methods. The commercial laboratory shall be certified by the state's approving authority for examination of potable water. The disinfection shall be repeated until tests indicate the absence of pollution for at least 2 full days. The unit will not be accepted until satisfactory bacteriological results have been obtained.

### 3.3.4 Waste Water Disposal

The water used for testing, cleaning, flushing and/or disinfection shall be disposed of in accordance with all applicable regulations. Disposal is solely the responsibility of the Contractor. The method proposed for disposal of waste water shall be provided to, and



approved by, the CO prior to performing any testing, cleaning, flushing and disinfection activities.

### 3.3.5 Cleanup

Upon completion of the installation of water lines, and appurtenances, all debris and surplus materials resulting from the work shall be removed.

**END OF SECTION**

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## **SECTION 02679**

### **WELL ABANDONMENT AND PROTECTION**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent version of the reference applies.

##### **OREGON ADMINISTRATIVE RULE (OAR)**

OAR 690-210	(2000) Well Construction Standards
OAR 690-220	(1999) Abandonment of Wells
OAR 690-240	Construction and Maintenance of Monitoring Wells and Other Holes

##### **AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM)**

ASTM D 1785	(1999) Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D 2466	(2002) Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
ASTM D 5088	(2002) Standard Practice for Decontamination of Field Equipment Used at Nonradioactive Waste Sites
ASTM D 5299	(1999) Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities
ASTM F 480	(2002) Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80

##### **1.2 EQUIPMENT**

The Contractor shall complete the work with a drill rig capable of driving on soft ground. The Contractor shall provide ancillary equipment to complete the work in accordance with the applicable standards. Those include, but are not limited to pumps, pressure washer, etc. The Contractor shall examine the condition of well abandonment areas prior to mobilizing

drill rig(s) to the site. No additional payment will be made to the Contractor for inability of the equipment to access the areas of work.

### 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

#### SD-01 Data

Drilling and bailing equipment and method; FIO

Well casing and grouting materials specification/manufacturer’s literature; FIO

Well extension construction diagrams; FIO

#### SD-18 Records

Well driller qualifications and Oregon Bonded Monitor Well Constructor’s License Number; FIO

Well abandonment notices (start cards) and variance from the Oregon Department of Water Resources; FIO

Contractor current certifications for HAZWOPER training and medical monitoring in accordance with OSHA requirements; FIO

## PART 2 PRODUCTS

### 2.1 MATERIALS OF CONSTRUCTION

#### 2.1.1 Water

Contractor shall provide temporary water required for construction in conformance with Section 01500 TEMPORARY CONSTRUCTION FACILITIES.

#### 2.1.2 Well Extensions

The extension for the monitoring wells to be protected shall be the same material as the well casing of equal diameter as the existing. Each section shall come individually wrapped in plastic sheeting for use on environmental investigation projects.

### 2.1.3 Bentonite

High-solids bentonite grout shall be made from sodium bentonite powder and/or granules. Water from an approved source shall be mixed with these powders or granules to form a thick bentonite slurry. The slurry shall consist of a mixture of bentonite and the manufacturer's recommended volume of water to achieve an optimal seal. The slurry shall contain at least 20 percent solid by weight and have a density of 9.4 lb per gallon (1.1 kg/L) of water or greater.

## **PART 3 EXECUTION**

### 3.1 WELL ABANDONMENT

#### 3.1.1 Scope

The Contractor shall abandon 31 existing wells as shown on the Drawings, according to Oregon Department of Environmental Quality (ODEQ) concurrence for well abandonment variance (Appendix 02679-A), and the requirements of these specifications. The Contractor shall submit a written request for a "special standard" for approval by Oregon Water Resources Department in accordance with Appendix 02679-A. The Contractor shall maintain a well abandonment record as specified in paragraph 3.1.3 WELL ABANDONMENT RECORDS. Groundwater levels shall be measured in all wells prior to abandonment. These water levels shall be included in the well abandonment records. No well shall be abandoned without the approval of the CO.

#### 3.1.2 Well Abandonment Tasks

- a. Check each well for presence of light non-aqueous phase liquid (LNAPL).
- b. Remove any LNAPL present by a bailer or peristaltic pump until none is present during the abandonment. Store all removed LNAPL in the LNAPL storage tank that is part of the temporary LNAPL Collection and Storage system constructed under this contract.
- c. Prepare high solids bentonite grout mix in accordance with the OAR requirements.
- d. Lower the tremie hose pipes to the bottom of the well and pressure grout from the bottom. The pressure shall be maintained at a minimum of 50 pounds per square inch (psi) (0.34 mega-pascals [MPa]) prior to raising the tremie hose, to the extent practicable.
- e. Pressure grout the well to within 18 inches (46 centimeters [cm]) from the surface.
- f. Remove the bollards, protective well casing, and the surface seal. These items shall be left on site and incorporated into the landfill in accordance with Section 02230 CLEARING AND GRUBBING. There are 3 bollards at each well designated by "MW."
- g. Break and remove the upper 2 feet (0.61 meters [m]) of the well casing from the ground.

- h. Fill the well location and seal the surface with bentonite grout to the existing ground surface.
- i. Decontaminate the drilling/abandonment equipment between abandonment of each well and prior to demobilizing from the site in accordance with Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW). Collect all decontamination fluid in drums. Contractor shall be responsible for proper disposal of the decontamination fluid off site in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS.

### 3.1.3 Well Abandonment Records

Abandonment records shall include, as a minimum, the following:

- a. Project name.
- b. Well number.
- c. Well location, depth and diameter.
- d. Date of abandonment.
- e. Method of abandonment.
- f. All materials used in the abandonment procedure and the interval in which test materials were placed.
- g. Casing and/or other items left in hole by depth, description, and composition.
- h. Description and total quantity of grout used initially.
- i. Description and daily quantities of grout used to compensate for settlement.
- j. Water or mud level (specify) prior to grouting and date measured.

## 3.2 WELL PROTECTION

### 3.2.1 Well Protection

Protect the wells designated on the Drawings for protection during all site activities. Any damage to the protected wells shall be repaired by the Contractor at no additional cost to the Government.

### 3.2.2 Well Extensions

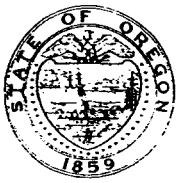
- a. Prior to placement of any fill around existing wells, raise the top of the well casing and protective casings as necessary.
- b. The extension to the wells during preload activities shall be accomplished by threaded joints. Solvents and glues shall not be used. The Contractor shall manually thread the existing casing and the appropriate length of matching threaded casing. The extension shall be the same material as the well casing. The Contractor can submit an alternative method for attachment of the well extensions for approval by the CO.
- c. Install at least one centralizer on each casing extension as shown on the Drawings.
- d. Protect the well extensions by 6-inch (15-cm) diameter, temporary, steel casing. Remove the existing locking cap on the “MW” wells and install extension with a coupler of at least 2 feet (0.6 m) long.
- e. The protective well casing shall be provided with locking cap. Provide universal locks and 2 sets of keys to the CO.
- f. The steel protective casing for the “GMW” wells shall be grouted to the depth of at least 2 feet (0.6 m) below existing grade.
- g. The protective steel casing shall extend 4 feet (1.2 m) above the preload grade.
- h. The tops of the well extensions shall be painted yellow for visibility.
- i. Install protective bollards as required.
- j. Install a 2-foot (0.6-m) surface seal on the surface of the preload pile per OAR requirements.
- k. The well extensions shall be removed after removal of the preload pile at that location, and monitoring wells restored to their original condition, with surface seal and four protective bollards at each well.
- l. Contractor shall add and remove extensions such that access to the wells is maintained at all times for monitoring. Groundwater monitoring of the wells will be conducted by others.
- m. Survey the top-of-casing elevation of the well extensions to a vertical accuracy of 0.01 feet (0.3 cm) by a licensed land surveyor in the State of Oregon in accordance with Section 01720 FIELD ENGINEERING and provide the survey data to the CO.

- n. Contractor shall document well extension construction with a diagram submitted to the CO. The diagrams shall include, but not be limited to:
  - (1) Project name
  - (2) Well number
  - (3) Well location, depth, and diameter
  - (4) Date of extension construction
  - (5) All materials used in the extension, by depth interval.



Appendix 02679-A

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# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Environmental Quality

Northwest Region  
2020 SW Fourth Avenue  
Suite 400  
Portland, OR 97201-4987  
(503) 229-5263 Voice  
TTY (503) 229-5471

December 12, 2000

Koorus Taghghi  
Project Engineer  
URS Corporation  
1500 Century Square  
1501 4<sup>th</sup> Avenue  
Seattle, WA 98101-1662

Re: Well Abandonment Variance,  
Tongue Point Landfill Site

Dear Mr. Taghghi:

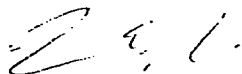
The Department of Environmental Quality (DEQ) has reviewed your November 29, 2000 request for a well abandonment variance. We concur that grouting without re-drilling is an acceptable abandonment method for the existing wells located within the Tongue Point Landfill. Although re-drilling is the preferred method for wells in contaminated areas, we believe that the site-specific conditions within the landfill will be protective of groundwater through pressure-grouting of the existing well casings. Our approval is based in part on the following conditions:

- Although light non-aqueous phase liquid (LNAPL) is present in the landfill materials, dense non-aqueous phase liquid (DNAPL) has not been identified and vertical migration of contamination within the landfill appears to be limited.
- Permeability of aquifer materials underlying the landfill decreases with depth to the maximum depth explored (approximately 70 feet).
- All wells are screened only within the upper, unconfined water-bearing unit. The majority of the wells and well points are screened within the landfill materials and underlying hydraulic fill. Some shallow wells penetrate the upper portion of the native alluvium, but deeper wells are screened only within the lower part of the alluvium. No wells significantly penetrate the underlying, low-permeability siltstone.
- A fully-encompassing slurry wall is planned for the landfill that will key-in to the siltstone, providing hydraulic control for the landfill materials, hydraulic fill, and native alluvium in which the wells are screened. Capping will further reduce the likelihood of vertical contaminant migration following implementation of the proposed remedial action.

As noted in your letter, any NAPL present in the wells should be removed prior to abandonment. High solids bentonite grout should be used (rather than a 5% grout/cement mix). In addition, DEQ expects that some of the abandoned shallow and deeper wells will need to be replaced following Phase II field activities to provide a comprehensive monitoring program for the landfill.

This letter is provided in support of a variance under the conditions noted above. The variance itself must be granted by the Oregon Water Resources Department (WRD), which will require that the driller submit a written request for a "special standard." This letter should be attached to that request and forwarded to Mike McCord at WRD Field and Technical Services Division, 158 12<sup>th</sup> Street NE, Salem, Oregon 97310-0210 (telephone 503-378-8455 Ext. 283).

Sincerely,



Thomas E. Roick, Project Manager  
Voluntary Cleanup/Portland Harbor

Cc: Don Pettit, DEQ NWR  
Tom Gainer, DEQ NWR  
Mike McCord, WRD  
Stephen Purchase, Division of State Lands  
Jonathan Maas, US Army Corps of Engineers

**END OF SECTION**

## **SECTION 02821**

### **FENCING**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM A 116	(2000) Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric
ASTM A 153/A 153M	(2000) Zinc-Coating (Hot Dip) on Iron and Steel Hardware
ASTM A 176	(1999) Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip
ASTM A 392	(1996) Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 478	(1997) Chromium-Nickel Stainless Steel Weaving and Knitting Wire
ASTM A 491	(1996) Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 666	(2000) Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
ASTM A 702	(1989; R 1994el) Steel Fence Posts and Assemblies, Hot Wrought
ASTM A 780	(2000) Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings
ASTM A 824	(1995) Metallic-Coated Steel Marcellled Tension Wire for Use With Chain Link Fence
ASTM C 94/C 94M	(2000) Ready-Mixed Concrete
ASTM D 4541	(1995el) Pull-Off Strength of Coatings Using Portable Adhesion Testers

ASTM F 626	(1996a) Fence Fittings
ASTM F 883	(1997) Padlocks
ASTM F 900	(1994) Industrial and Commercial Swing Gates
ASTM F 1043	(2000) Strength and Protective Coatings on Metal Industrial Chain-Link Fence Framework
ASTM F 1083	(1997) Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
ASTM G 23	(1996) Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials
ASTM G 26	(1996) Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials
ASTM G 53	(1996) Operating Light- and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials

## 1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-13 Certificates

Chain Link Fence; GA

Statement, signed by an official authorized to certify on behalf of the manufacturer, attesting that the chain link fence and component materials meet the specified requirements.

## 1.3 APPROVAL OF POLYVINYL CHLORIDE-COATED FENCE MATERIALS (NOT USED)

# PART 2 PRODUCTS

## 2.1 FENCE FABRIC

Fence fabric shall conform to the following:

### 2.1.1 Chain Link Fence Fabric

ASTM A 392, Class 1, zinc-coated steel wire with minimum zinc coating weight of 1.2 ounces per square foot ( $\text{oz/ft}^2$ ) (370 grams per square meter [ $\text{g/m}^2$ ]) of coated surface, or ASTM A 491, Type I, aluminum-coated steel wire. Fabric shall be fabricated of 9-gauge wire woven in 2-inch (50-millimeter [ $\text{mm}$ ]) mesh. Fabric height shall be 6 feet (1.8 meter [ $\text{m}$ ]). Fabric shall be twisted and barbed on the top selvage and knuckled on the bottom selvage.

### 2.1.2 Woven Wire (NOT USED)

## 2.2 GATES

ASTM F 900. Gate shall be a 24-foot (7.3-m) wide, 6-foot (1.8-m) high, double-swing gate, consisting of two 12-foot (3.7-m) leaves. Gate frames shall conform to strength and coating requirements of ASTM F 1083 for Type I, steel pipe, with external coating Type A, nominal pipe size (NPS) 1 ½ inches (40 mm). Gate frames shall conform to strength and coating requirements of ASTM F 1043, for Type II, steel pipe with external coating Type A or Type B, nominal pipe size (NPS) 1 ½ inches (40 mm). Gate fabric shall be as specified for chain link fabric. Gate leaves more than 8 feet (2.44 m) wide shall have either intermediate members and diagonal truss rods, or shall have tubular members as necessary to provide rigid construction, free from sag or twist. Gate fabric shall be attached to the gate frame by method standard with the manufacturer except that welding will not be permitted. Latches, hinges, stops, keepers, rollers, and other hardware items shall be furnished as required for the operation of the gate. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gate. Stops shall be provided for holding the gates in the open position.

## 2.3 POSTS

### 2.3.1 Metal Posts for Chain Link Fence

All posts shall be Type I or Type II round steel pipe. Type I posts shall be hot dipped galvanized with a minimum average zinc coating of  $1.8 \text{ oz/ft}^2$  ( $550 \text{ g/m}^2$ ) in accordance with ASTM F 1083. Type II posts shall be steel pipe, cold formed and welded per ASTM F 1043 with external coating Type A or B,  $0.90 \text{ oz/ft}^2$  ( $275 \text{ g/m}^2$ ). Intermediate (line) posts shall have a minimum nominal outside diameter of 1.90 inches (48.3 mm). Terminal (end, corner, and pull) posts shall have a minimum nominal outside diameter of 2.375 inches (60.0 mm). Both terminal and intermediate posts shall be sized to allow for a minimum embedment depth of 30 inches (76 cm) below finish grade. Gate post shall be for the gate type specified subject to the limitation specified in ASTM F 900. Gate posts shall be sized to allow for a minimum embedment depth of 36 inches (91 cm) below finish grade.

### 2.3.2 Metal Posts for Farm Style Fence (NOT USED)

### 2.3.3 Composite Polyester Resin Reinforced Line Posts (NOT USED)

### 2.3.4 Wood Posts (NOT USED)

## 2.4 BRACES AND RAILS

ASTM F 1083, zinc-coated, Type I, steel pipe, size NPS 1 ¼ inches (32 mm). Type II, Group IC steel pipe, zinc-coated, shall meet the strength and coating requirements of ASTM F 1043. Braces and rails shall be Type I or Type II, steel pipe, size NPS 1 ¼ inches (32 mm) and shall be zinc coated (Type A) conforming to the requirements of ASTM F 1043.

## 2.5 WIRE

### 2.5.1 Tension Wire

Tension wire shall be Type I or Type II, Class 2 coating, in accordance with ASTM A 824.

### 2.5.2 Barbed Wire for Farm Style Fence (NOT USED)

## 2.6 ACCESSORIES

ASTM F 626. Ferrous accessories shall be zinc or aluminum coated. Truss rods shall be furnished for each terminal post. Truss rods shall be provided with turnbuckles or other equivalent provisions for adjustment. Tie wire for attaching fabric to rails, braces, and posts shall be 9-gauge steel wire and match the coating of the fence fabric. The tie wires shall be a double loop and 6.5 inches (165 mm) in length. Miscellaneous hardware coatings shall conform to ASTM A 153/A 153M unless modified.

## 2.7 BARBED TAPE (NOT USED)

## 2.8 CONCRETE

ASTM C 94/C 94M, using ¾-inch (19-mm) maximum size aggregate, and having minimum compressive strength of 3000 psi (21 Mpa) at 28 calendar days. Grout shall consist of one part Portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix.

## 2.9 PADLOCKS

Padlocks shall conform to ASTM F 883, Type PO1, Size 2 inch (51 mm), Master Lock #5 or equivalent. All padlocks shall be keyed alike.



2.10 GATE OPERATOR (NOT USED)

2.11 ELECTRO-MECHANICAL LOCKS (NOT USED)

**PART 3 EXECUTION**

3.1 INSTALLATION

Fence shall be installed to the lines and grades indicated. The area on either side of the fence line shall be cleared to the extent indicated. Line posts shall be spaced equidistant at intervals not exceeding 10 feet (3 m). Terminal (corner, gate, and pull) posts shall be set at the beginning and end of each continuous length of fence and at abrupt changes in vertical and horizontal alignment. Fabric shall be continuous between terminal posts; however, runs between terminal posts shall not exceed 500 feet (152.4 m). Any damage to galvanized surfaces, including welding, shall be repaired with paint containing zinc dust in accordance with ASTM A 780.

3.2 EXCAVATION

Post holes shall be cleared of loose material. Waste material shall be spread where directed. The ground surface irregularities along the fence line shall be eliminated to the extent necessary to maintain a 2-inch (50-mm) clearance between the bottom of the fabric and finish grade.

3.3 POST INSTALLATION

3.3.1 Posts for Chain Link Fence

Posts shall be set plumb and in alignment. Except where solid rock is encountered, posts shall be set in concrete with a minimum hole diameter equal to four times the largest cross section of the post and to a minimum depth of 30 inches (0.76 m). Where solid rock is encountered with no overburden, posts shall be set to a minimum depth of 18 inches (457 mm) in rock. Where solid rock is covered with an overburden of soil or loose rock, posts shall be set to the minimum depth of 30 inches (0.76 m) unless a penetration of 18 inches (457 mm) in solid rock is achieved before reaching the indicated depth, in which case depth of penetration shall terminate. All portions of posts set in rock shall be grouted. Portions of posts not set in rock shall be set in concrete from the rock to ground level. Diameters of holes in solid rock shall be at least 1 inch (25 mm) greater than the largest cross section of the post. Concrete and grout shall be thoroughly consolidated around each post, shall be free of voids and finished to form a dome. Concrete and grout shall be allowed to cure for 72 hours prior to attachment of any item to the posts.

### 3.3.2 Posts for Farm Style Fence (NOT USED)

## 3.4 RAILS

### 3.4.1 Top Rail

Top rail shall be supported at each post to form a continuous brace between terminal posts. Where required, sections of top rail shall be joined using sleeves or couplings that will allow expansion or contraction of the rail.

### 3.4.2 Bottom Rail (NOT USED)

## 3.5 BRACES AND TRUSS RODS (NOT USED)

## 3.6 TENSION WIRES

Tension wires shall be installed along the bottom of the fence line and attached to the terminal posts of each stretch of the fence. Bottom tension wire shall be installed within the bottom 6 inches (152 mm) of the installed fabric. Tension wire shall be pulled taut and shall be free of sag.

## 3.7 CHAIN LINK FABRIC

Chain link fabric shall be installed on the outside of the enclosed area. Fabric shall be attached to terminal posts with stretcher bars and tension bands. Bands shall be spaced at approximately 15-inch (381-mm) intervals. The fabric shall be installed and pulled taut to provide a smooth and uniform appearance free from sag, without permanently distorting the fabric diamond or reducing the fabric height. Fabric shall be fastened to line posts at 15-inch (381-mm) intervals and fastened to all rails and tension wires at approximately 24-inch (610-mm) intervals. Fabric shall be cut by untwisting and removing pickets. Splicing shall be accomplished by weaving a single picket into the ends of the rolls to be joined. The bottom of the installed fabric shall be 2 inches plus or minus 1/2 inch (50 mm plus or minus 13 mm) above the ground.

## 3.8 BARBED WIRE SUPPORTING ARMS AND BARBED WIRE (NOT USED)

## 3.9 GATE INSTALLATION

Gate shall be installed at the location shown. Gate shall be a 24-foot (7.3-m) wide, 6-foot (1.8-m) high, double-swing gate, consisting of two 12-foot (3.7-m) leaves. Hinged gates shall be mounted to permit a 180-degree swing. Latches, stops, and keepers shall be installed as required. Padlocks shall be attached to gates or gate posts with chains. Hinge pins, and hardware shall be welded or otherwise secured to prevent removal.

3.10 BARBED TAPE INSTALLATION (NOT USED)

3.11 GROUNDING (NOT USED)

**END OF SECTION**

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## **SECTION 03307**

### **CONCRETE FOR MINOR STRUCTURES**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent version of the publication and test method shall be applicable in all cases.

##### **AMERICAN CONCRETE INSTITUTE (ACI) INTERNATIONAL**

ACI 308	(1992) Standard Practice for Curing Concrete
ACI 318/318R	(1992) Building Code Requirements for Reinforced Concrete
ACI 318M/318RM	(1992) Building Code Requirements for Reinforced Concrete (Metric)
ACI 347R	(1994) Formwork for Concrete

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM A 185	(1994) Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
ASTM A 615/A 615M	(1995a) Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM C 31	(1991) Making and Curing Concrete Test Specimens in the Field
ASTM C 33	(1993) Concrete Aggregate
ASTM C 39	(1993) Compressive Strength of Cylindrical Concrete Specimens
ASTM C 94	(1994) Ready-Mixed Concrete
ASTM C 150	(1995) Portland Cement
ASTM C 143	Standard Test Method for Slump of Hydraulic Cement Concrete
ASTM C 171	(1992) Sheet Materials for Curing Concrete
ASTM C 172	(1990) Sampling Freshly Mixed Concrete

ASTM C 231	(1991b) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260	(1994) Air-Entraining Admixtures for Concrete
ASTM C 309	(1994) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494	(1992) Chemical Admixtures for Concrete
ASTM C 618	(1994a) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
ASTM C 685	(1994) Concrete Made by Volumetric Batching and Continuous Mixing
ASTM D 75	(1987; R 1992) Sampling Aggregates
ASTM D 98	(1993) Calcium Chloride
ASTM E 96	(1995) Water Vapor Transmission of Materials

OREGON DEPARTMENT OF TRANSPORTATION (ODOT)

ODOT	(2002) Standard Specifications
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U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 400	(1963) Requirements for Water for Use in Mixing or Curing Concrete
COE CRD-C 572	(1974) Corps of Engineers Specifications for Polyvinylchloride Waterstop
COE CRD-C 506	(1972) Sealing Compound: Elastomeric Type, Multi-Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures)

## 1.2 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Air-Entraining Admixture; FIO.

Accelerating Admixture; FIO.

Water-Reducing or Retarding Admixture; FIO.

Curing Materials; FIO.

Reinforcing Steel; FIO.

Manufacturer's literature is available from suppliers which demonstrates compliance with applicable specifications for the above materials.

Batching and Mixing Equipment; FIO.

Batching and mixing equipment will be accepted on the basis of manufacturer's data which demonstrates compliance with the applicable specifications.

Conveying and Placing Concrete; FIO.

The methods and equipment for transporting, handling, depositing, and consolidating the concrete shall be submitted prior to the first concrete placement.

Formwork; FIO.

Formwork design shall be submitted prior to the first concrete placement.

#### SD-09 Reports

Aggregates; GA.

Aggregates will be accepted on the basis of certificates of compliance and test reports that show the material(s) meets the quality and grading requirements of the specifications under which it is furnished.

Concrete Mixture Proportions; GA.

The contractor shall submit the mixture proportions that will produce concrete of the quality required 30 calendar days prior to placement of concrete. Applicable test reports shall be submitted to verify that the concrete mixture proportions selected will produce concrete of the quality specified.

#### SD-13 Certificates

Cementitious Materials; GA.

Certificates of compliance attesting that the concrete materials meet the requirements of the specifications shall be submitted in accordance with the Special Clause CERTIFICATES OF

COMPLIANCE. Cementitious material will be accepted on the basis of a manufacturer's certificate of compliance, accompanied by mill test reports that the material(s) meets the requirements of the specification under which it is furnished.

Aggregates; GA.

Aggregates will be accepted on the basis of certificates of compliance and tests reports that show the material(s) meets the quality and grading requirements of the specifications under which it is furnished.

### 1.3 DESIGN AND PERFORMANCE REQUIREMENTS

The Government will maintain the option to sample and test aggregates and concrete to determine compliance with the specifications. The Contractor shall provide facilities and labor as may be necessary to assist the Government in procurement of representative test samples. Samples of aggregates will be obtained at the point of batching in accordance with ASTM D 75. Concrete will be sampled in accordance with ASTM C 172. Slump and air content will be determined in accordance with ASTM C 143 and ASTM C 231, respectively, when cylinders are molded. Compression test specimens will be made, cured, and transported in accordance with ASTM C 31. Compression test specimens will be tested in accordance with ASTM C 39. Samples for strength tests will be taken not less than once each shift in which concrete is produced. A minimum of three specimens will be made from each sample; two will be tested at 28 calendar days for acceptance, and one will be tested at 7 calendar days for information.

#### 1.3.1 Strength

Acceptance test results will be the average strengths of two specimens tested at 28 calendar days. The strength of the concrete will be considered satisfactory so long as the average of three consecutive acceptance test results equals or exceeds the specified compressive strength ( $f'_c$ ) and no individual acceptance test result falls below  $f'_c$  by more than 500 pounds per square inch (psi) (3.4 mega-Pascal [MPa]).

#### 1.3.2 Construction Tolerances

A Class "C" finish shall apply to all surfaces except those specified to receive a Class "D" finish. A Class "D" finish shall apply to all surfaces which will be permanently concealed after construction. The surface requirements for the classes of finish required shall be as specified in ACI 347R.

#### 1.3.3 Concrete Mixture Proportions

Concrete mixture proportions shall be the responsibility of the Contractor. Mixture proportions shall include the dry weights of cementitious material(s); the nominal maximum size of the coarse aggregate; the specific gravities, absorptions, and saturated surface dry weights of fine and coarse aggregates; the quantities, types, and names of admixtures; and quantity of water per cubic yard (0.77 meter [ $m$ ]<sup>3</sup>) of concrete. All materials included in the



mixture proportions shall be of the same type and from the same source as will be used on the project. Specified compressive strength  $f'_c$  shall be 3,000 psi (20.7 MPa) at 28 calendar days. The maximum nominal size coarse aggregate shall be 1-1/2 inches (37.5 millimeters [mm]), in accordance with ACI 318M/318RM and ACI 318/318R. The air content shall be between 4.5 and 7.5 percent. The slump shall be between 2 and 5 inches (50 and 125 mm). The maximum water to cement ratio shall be 0.50.

#### 1.4 REGULATORY REQUIREMENTS (NOT USED)

## **PART 2 PRODUCTS**

### 2.1 MATERIALS

#### 2.1.1 Cementitious Materials

Cementitious materials shall conform to the appropriate specifications listed:

##### 2.1.1.1 Portland Cement

ASTM C 150, Type I or II, low alkali

##### 2.1.1.2 Blended Hydraulic Cement (Not Used)

##### 2.1.1.3 Pozzolan (Not Used)

#### 2.1.2 Aggregates

Aggregates shall meet the quality and grading requirements of ODOT standard specifications.

#### 2.1.3 Admixtures

Admixtures to be used, when required or approved, shall comply with the appropriate specification listed. Chemical admixtures that have been in storage at the project site for longer than 6 months or that have been subjected to freezing shall be retested at the expense of the contractor at the request of the Contracting Officer (CO) and shall be rejected if test results are not satisfactory.

##### 2.1.3.1 Air-Entraining Admixture

Air-entraining admixture shall meet the requirements of ASTM C 260.

##### 2.1.3.2 Accelerating Admixture

Calcium chloride shall meet the requirements of ASTM D 98. Other accelerators shall meet the requirements of ASTM C 494, Type C or E.

#### 2.1.3.3 Water-Reducing or Retarding Admixture

Water-reducing or retarding admixture shall meet the requirements of ASTM C 494, Type A, B, or D.

#### 2.1.4 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD-C 400.

#### 2.1.5 Reinforcing Steel

Reinforcing steel bar shall conform to the requirements of ASTM A 615/A 615M, Grade 60. Welded steel wire fabric shall conform to the requirements of ASTM A 185. Details of reinforcement not shown shall be in accordance with ACI 318M/318RM, ACI 318/318R, Chapters 7 and 12.

#### 2.1.6 Expansion Joint Filler Strips, Premolded (Not Used)

#### 2.1.7 Joint Sealants, Field Molded Sealants (Not Used)

#### 2.1.8 Waterstops (Not Used)

#### 2.1.9 Formwork

The design and engineering of the formwork, as well as its construction, shall be the responsibility of the Contractor.

#### 2.1.10 Form Coatings

Forms for exposed surfaces shall be coated with a nonstaining form oil, which shall be applied shortly before concrete is placed.

#### 2.1.11 Vapor Barrier (Not Used)

#### 2.1.12 Curing Materials

Curing materials shall conform to the following requirements.

##### 2.1.12.1 Impervious Sheet Materials

Impervious sheet materials, ASTM C 171, type optional, except polyethylene film, if used, shall be white opaque.

##### 2.1.12.2 Membrane-Forming Curing Compound

ASTM C 309, Type 1-D or 2, Class A

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

#### **3.1.1 General**

Construction joints shall be prepared to expose coarse aggregate, and the surface shall be clean, damp, and free of laitance. Ramps and walkways, as necessary, shall be constructed to allow safe and expeditious access for concrete and workmen. Snow, ice, standing or flowing water, loose particles, debris, and foreign matter shall have been removed. Earth foundations shall be satisfactorily compacted. Spare vibrators shall be available. The entire preparation shall be accepted by the Government prior to placing.

#### **3.1.2 Embedded Items**

Reinforcement shall be secured in place; joints, anchors, and other embedded items shall have been positioned. Internal ties shall be arranged so that when the forms are removed all metal will be not less than 50 mm (2 inches) from concrete surfaces permanently exposed to view or exposed to water on the finished structures. Embedded items shall be free of oil and other foreign matters such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. All equipment needed to place, consolidate, protect, and cure the concrete shall be at the placement site and in good operating condition.

#### **3.1.3 Formwork Installation**

Forms shall be properly aligned, adequately supported, and mortar-tight. The form surfaces shall be smooth and free from irregularities, dents, sags, or holes when used for permanently exposed faces. All exposed joints and edges shall be chamfered, unless otherwise indicated.

#### **3.1.4 Vapor Barrier Installation (Not Used)**

#### **3.1.5 Production of Concrete**

##### **3.1.5.1 Ready-Mixed Concrete**

Ready-mixed concrete shall conform to ASTM C 94 except as otherwise specified.

##### **3.1.5.2 Concrete Made by Volumetric Batching and Continuous Mixing**

Concrete made by volumetric batching and continuous mixing shall conform to ASTM C 685.

### 3.1.5.3 Batching and Mixing Equipment

The contractor shall have the option of using an on-site batching and mixing facility. The facility shall provide sufficient batching and mixing equipment capacity to prevent cold joints. The method of measuring materials, batching operation, and mixer shall be submitted for review. On-site plant shall conform to the requirements of either ASTM C 94 or ASTM C 685.

### 3.1.6 Waterstops (Not Used)

## 3.2 CONVEYING AND PLACING CONCRETE

Conveying and placing concrete shall conform to the following requirements.

### 3.2.1 General

Concrete placement shall not be permitted when weather conditions prevent proper placement and consolidation without approval. When concrete is mixed and/or transported by a truck mixer, the concrete shall be delivered to the site of the work and discharge shall be completed within 1-1/2 hours, or 45 minutes when the placing temperature is 85 degrees Fahrenheit (°F) (30 degrees Celsius [°C]) or greater unless a retarding admixture is used. Concrete shall be conveyed from the mixer to the forms as rapidly as practicable by methods which prevent segregation or loss of ingredients. Concrete shall be in place and consolidated within 15 minutes after discharge from the mixer. Concrete shall be deposited as close as possible to its final position in the forms and be so regulated that it may be effectively consolidated in horizontal layers 18 inches (450 mm) or less in thickness with a minimum of lateral movement. The placement shall be carried on at such a rate that the formation of cold joints will be prevented.

### 3.2.2 Consolidation

Each layer of concrete shall be consolidated by rodding, spading, or internal vibrating equipment. Internal vibration shall be systematically accomplished by inserting the vibrator through the fresh concrete in the layer below at a uniform spacing over the entire area of placement. The distance between insertions shall be approximately 1.5 times the radius of action of the vibrator and overlay the adjacent, just-vibrated area by approximately a few inches (100 mm). The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches (150 mm) into the layer below, if such a layer exists. It shall be held stationary until the concrete is consolidated and then withdrawn slowly at the rate of about 3 inches (75 mm) per second.

### 3.2.3 Cold-Weather Requirements

No concrete placement shall be made when the ambient temperature is below 35 °F (2 °C) or if the ambient temperature is below 40 °F (5 °C) and falling. Suitable covering and other means as approved shall be provided for maintaining the concrete at a temperature of at least 50 °F (10 °C) for not less than 72 hours after placing and at a temperature above freezing for

the remainder of the curing period. Salt, chemicals, or other foreign materials shall not be mixed with the concrete to prevent freezing. Any concrete damaged by freezing shall be removed and replaced at the expense of the contractor.

### 3.2.4 Hot-Weather Requirements

When the rate of evaporation of surface moisture, as determined by using Figure 1 of ACI 308, is expected to exceed 0.2 pound per square foot (1 kilogram [kg] per m<sup>2</sup>) per hour, provisions for windbreaks, shading, fog spraying, or covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

## 3.3 FORM REMOVAL

Forms shall not be removed before the expiration of 24 hours after concrete placement except where otherwise specifically authorized. Supporting forms and shoring shall not be removed until the concrete has cured for at least 5 calendar days. When conditions on the work are such as to justify the requirement, forms will be required to remain in place for longer periods.

## 3.4 FINISHING

### 3.4.1 General

No finishing or repair will be done when either the concrete or the ambient temperature is below 50 °F (10 °C).

### 3.4.2 Finishing Formed Surfaces

All fins and loose materials shall be removed, and surface defects including tie holes shall be filled. All honeycomb areas and other defects shall be repaired. All unsound concrete shall be removed from areas to be repaired. Surface defects greater than 1/2 inch (13 mm) in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete shall be reamed or chipped and filled with dry-pack mortar. The prepared area shall be brush-coated with an approved epoxy resin or latex bonding compound or with a neat cement grout after dampening and filled with mortar or concrete. The cement used in mortar or concrete for repairs to all surfaces permanently exposed to view shall be a blend of portland cement and white cement so that the final color when cured will be the same as adjacent concrete.

### 3.4.3 Finishing Unformed Surfaces

All unformed surfaces that are not to be covered by additional concrete or backfill shall be float finished to elevations shown, unless otherwise specified. Surfaces to receive additional concrete or backfill shall be brought to the elevations shown and left as a true and regular surface. Exterior surfaces shall be sloped for drainage unless otherwise shown. Joints shall be carefully made with a jointing tool. Unformed surfaces shall be finished to a tolerance of

3/8 inch (10 mm) for a float finish and 5/16 inch (8 mm) for a trowel finish as determined by a 10-foot (3-m) straightedge placed on surfaces shown on the plans to be level or having a constant slope. Finishing shall not be performed while there is excess moisture or bleeding water on the surface. No water or cement shall be added to the surface during finishing.

#### 3.4.3.1 Float Finish

Surfaces to be float finished shall be screeded and darbyed or bullfloated to eliminate the ridges and to fill in the voids left by the screed. In addition, the darby or bullfloat shall fill all surface voids and only slightly embed the coarse aggregate below the surface of the fresh concrete. When the water sheen disappears and the concrete will support a person's weight without deep imprint, floating should be completed. Floating should embed large aggregates just beneath the surface, remove slight imperfections, humps, and voids to produce a plane surface, compact the concrete, and consolidate mortar at the surface.

#### 3.4.3.2 Trowel Finish (Not Used)

#### 3.4.3.3 Broom Finish

A broom finish shall be applied to the utility pad, except for the area within the compressor building, as shown on the plans. The concrete shall be screeded and floated to required finish plane with no coarse aggregate visible. After surface moisture disappears, the surface shall be broomed or brushed with a broom or fiber bristle brush in a direction transverse to that of the main traffic or as directed.

#### 3.4.3.4 Expansion and Contraction Joints (Not Used)

### 3.5 CURING AND PROTECTION

Beginning immediately after placement and continuing for at least 7 calendar days, all concrete shall be cured and protected from premature drying, extremes in temperature, rapid temperature change, freezing, mechanical damage, and exposure to rain or flowing water. All materials and equipment needed for adequate curing and protection shall be available and at the site of the placement prior to the start of concrete placement. Preservation of moisture for concrete surfaces not in contact with forms shall be accomplished by one of the following methods:

- a. Continuous sprinkling or ponding
- b. Application of absorptive mats or fabrics kept continuously wet
- c. Application of sand kept continuously wet
- d. Application of impervious sheet material conforming to ASTM C 171

The preservation of moisture for concrete surfaces placed against wooden forms shall be accomplished by keeping the forms continuously wet for 7 calendar days. If forms are removed prior to end of the required curing period, other curing methods shall be used for the balance of the curing period. During the period of protection removal, the temperature of the air in contact with the concrete shall not be allowed to drop more than 25 °F (15 °C) within a 24-hour period.

### 3.6 TESTS AND INSPECTIONS

#### 3.6.1 General

The individuals who sample and test concrete as required in this specification shall have demonstrated a knowledge and ability to perform the necessary test procedures equivalent to the ACI minimum guidelines for certification of Concrete Field Testing Technicians, Grade I.

#### 3.6.2 Inspection Details and Frequency of Testing

##### 3.6.2.1 Preparations for Placing

Foundation or construction joints, forms, and embedded items shall be inspected in sufficient time prior to each concrete placement by the Contractor to certify that it is ready to receive concrete.

##### 3.6.2.2 Air Content

Air content shall be checked at least once during each shift that concrete is placed. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 231.

##### 3.6.2.3 Slump

Slump shall be checked once during each shift that concrete is produced. Samples shall be obtained in accordance with ASTM C 172 and tested in accordance with ASTM C 143.

##### 3.6.2.4 Consolidation and Protection

The Contractor shall ensure that the concrete is properly consolidated, finished, protected, and cured.

#### 3.6.3 Action Required

##### 3.6.3.1 Placing

The placing foreman shall not permit placing to begin until he has verified that an adequate number of acceptable vibrators, which are in working order and have competent operators, are available. Placing shall not be continued if any pile is inadequately consolidated.

### 3.6.3.2 Air Content

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment shall be made to the dosage of the air-entrainment admixture.

### 3.6.3.3 Slump

Whenever a test result is outside the specification limits, the concrete shall not be delivered to the forms and an adjustment should be made in the batch weights of water and fine aggregate. The adjustments are to be made so that the water to cement ratio does not exceed that specified in the submitted concrete mixture proportion.

### 3.6.4 Reports

The results of all tests and inspections conducted at the project site shall be reported informally at the end of each shift and in writing weekly and shall be delivered within 3 calendar days after the end of each weekly reporting period. See Section 01451 CONTRACTOR QUALITY CONTROL.

**END OF SECTION**



## **SECTION 13122**

### **PRE-ENGINEERED COMPRESSOR BUILDING**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The most recent revision of the reference applies.

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM C 518                      (1998) Steady-State Heat Flux Measurements and Thermal  
Transmission Properties by Means of the Heat Flow Meter  
Apparatus

ASTM C 553                      (1992) Mineral Fiber Blanket Thermal Insulation for Commercial  
and Industrial Applications

ASTM C 612                      (1993) Mineral Fiber Block and Board Thermal Insulation

ASTM C 991                      (1998) Flexible Glass Fiber Insulation for Pre-Engineered Metal  
Buildings

Underwriters Laboratories (UL) – U.O. Class 90 Rating (UL Test 580)

Uniform Building Code (UBC)

Uniform Fire Code (UFC)

Local and Municipal Codes as Applicable

##### **1.2 DESCRIPTION**

The work in this section shall include all materials and labor necessary to install a free-standing pre-engineered metal building on a concrete slab show in the Drawings. This section presents the dimensional requirements and component requirements of the structure; delineates the quality of materials, design criteria required, and the workmanship during construction. Specifically, the Contractor shall furnishing one pre-engineered building to enclose the compressed air system and

electrical panels as shown on the Drawings including fabrication, delivery, and installation on a concrete slab.

### 1.2.1 Wood Frame Building

Contractor may submit plans for review and approval by the Contracting Officer (CO) for a wood framed building as a substitute for the provisions detailed in this specification. A wood frame building if accepted by CO shall meet all of the dimensional, operational, and code requirements as provided in this section. Full and complete plans and construction details must be submitted for review and approval of the CO.

## 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals not having a “GA” designation are for information only. When used, a designation following the “GA” designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

### SD-02 Shop Drawings

Drawings; GA.

Detail drawings consisting of catalog cuts, design and erection drawings. Within six (6) weeks following the Notice-to-Proceed, the successful contractor shall submit drawings of the proposed building including calculations sufficient for plan check by the CO. Shop and erection drawings shall be supplied in accordance with the contract requirements.

### SD-03 Product Data

Manufacturer’s Instructions; FIO.

Manufacturer’s literature for individual building component systems.

Qualifications; FIO.

Qualifications of the manufacturer, and qualifications and experience of the building erector. A brief list of locations where buildings of similar design have been used shall be included with the detail drawings and shall also include information regarding date of completion, name and address of owner, and how the structure is used.

## 1.4 GENERAL REQUIREMENTS

The basic requirements of the building are as follows:

### 1.4.1 General

Contractor shall provide one free standing 10-foot by 10-foot (3-meter [m] by 3-m) (outside dimensions) structure that meets all local building and safety code requirements and shall secure all permits as necessary. Structure shall have a minimum of a 7-foot (2-m) inside ceiling height, and the roof shall have a minimum 15 percent slope. The roof shall be either single or double pitched with a minimum ceiling height of 7 feet (2 m) and maximum eave height of 9.5 feet (2.7 m). The building shall be secured to the concrete pad shown in the drawings in a manner the meets manufactures requirements and all applicable regulations. The concrete pad shall be the floor of the building. The building shall be thermally insulated and heated.

### 1.4.2 Utilities

The building shall be complete with all interior wiring and specified fixtures. Power and telephone will be supplied to the building system therefore, building shall have provisions for mounting these utilities. Electrical requirements and fixtures are discussed in Section 16375 ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND and shown on the Drawings. In general the building shall be supplied with interior lighting, exterior lighting, interior and exterior outlets, and an electrical connection for a compressor. Provisions shall also be made for mounting mechanical plumbing associated with the light non-aqueous phase liquid (LNAPL) collection system including air filters, valves, and a regulator as shown on the Drawings.

### 1.4.3 Windows and Doors

The building shall not have any windows. However, one clear skylight shall be installed in the center of the roof to allow natural light in and two vents 4-inch-diameter (10-centimeter-[cm]diameter) minimum shall be installed in two of the building walls for ventilation. In addition the building shall include a wind powered (passive) turbine ventilator mounted on the roof. The building shall include a double-wide access door 70 inches (178 cm) wide minimum centered on the north side of the building.

### 1.4.4 Materials

The exterior of the walls and roof shall be metal siding and roof deck. The metal siding and roof deck shall be finished in a light earthtone color.

### 1.4.5 Fire Rating

The east wall of the building shall have wall construction, which satisfies a one-hour fire-rating requirement as determined by the City Building Department.

#### 1.4.6 Manufacturer Qualifications

Building shall be the product of a recognized building manufacturer who has been in the practice of manufacturing buildings for a period of not less than 5 years. The manufacturer shall be chiefly engaged in the practice of designing and fabricating manufactured buildings.

### 1.5 GENERAL DESIGN CRITERIA

The building shall be designed and manufactured to comply with the latest edition of the UBC and UFC and conform with any Oregon State amendments. The building shall be designed to withstand the live loads, wind and seismic loads as required by the State of Oregon.

#### 1.5.1 Loads

The design loads shall not be less than indicated in Table 13122-1.

**Table 13122-1  
MINIMUM DESIGN LOADS**

<b>Load Type</b>	<b>Minimum Load Amount</b>
Live	250 lbs (113 kg)
Snow	25 psf (122 kg/m <sup>2</sup> )
Wind	80 mph (128 km/hr) exp “C”
Seismic	Zone 3

Notes:

kg - kilogram

kg/m<sup>2</sup> - kilogram per square meter

km/hr - kilometer per hour

lb - pound

mph - mile per hour

psf - pound per square foot

#### 1.5.2 Partial Construction

The roof shall not be considered to be a safe work platform until completely secured to the structural system. Therefore, walkboards or other safety equipment as required by safety standards shall be provided by the erecting Contractor to provide worker safety during panel installation.

### 1.5.3 Metal Panels

Metal panels shall be designed in accordance with AISC “specifications for the Design of Light Gauge Formed Steel Structural members, latest edition.” Panels shall be at least 18 gauge.

### 1.5.4 Provisions for Expansion/Contraction

The building shall provide for thermal expansion/contraction without detrimental effect to the structure when there is a +100 degrees F (38 degrees C) temperature difference between the inside structural framework of the building and the temperature of the roof.

## 1.6 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials other than framing and structural members shall be covered with weathertight coverings and kept dry. Storage accommodations for roofing and siding shall provide good air circulation and protection from surface staining.

## 1.7 WARRANTIES

The Building (roofing, siding, and related components) shall be warranted as described below against material and workmanship deficiencies, system deterioration caused by ordinary exposure to the elements and service design loads, leaks and wind uplift damage. Any emergency temporary repairs conducted by the owner shall not negate the warranties.

## PART 2 PRODUCTS

### 2.1 GENERAL

All products utilized in the building construction shall conform to the requirements of the respective sections of this specification.

### 2.2 FRAMING AND STRUCTURAL MEMBERS

Building shall be a metal or wood framed structure.

### 2.3 ROOFING AND SIDING

Roofing and siding panels shall be aluminum or galvanized steel and shall have a light earthtone color finish. Panels of maximum possible length shall be used to minimize endlaps, eave panels shall extend beyond the structural line of the sidewall.

### 2.3.1 Roofing

Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope unless otherwise approved. Width of sheets with overlapping configurations shall provide not less than 24 inches (610 millimeters [mm]) of coverage in place. Panel shall have configurations for overlapping sheets. Roof deck assemblies shall be Class 90 as defined in UL 580. Height of corrugation at overlap of adjacent roof sheets shall be the building manufacturer's standard.

### 2.3.2 Siding

Length of sheet shall be sufficient to cover the entire height of any unbroken height of wall surface unless otherwise approved. Width of sheets with overlapping configurations shall provide not less than 24 inches (610 mm) of coverage in place. Siding shall have configurations for overlapping adjacent sheets or interlocking ribs for securing adjacent sheets. Siding shall be fastened to framework using exposed fasteners.

### 2.3.3 Steel Panels

Steel roofing and siding panels shall be zinc-coated steel conforming to American Society for Testing and Materials (ASTM) A 653/A 653M, G 90 coating designation; aluminum-zinc alloy coated steel conforming to ASTM A 792/A 792M, AZ coating; or aluminum-coated steel conforming to ASTM A 463/A 463M, Type 2, coating designation T2 E5. Panels shall be 0.024 inch (0.610 mm) thick minimum.

### 2.3.4 Aluminum Panels

Aluminum alloy roofing and siding panels shall conforming to ASTM B 209M ASTM B 209, temper as required for the forming operation, minimum 0.032 inch (0.813 mm) thick.

### 2.3.5 Factory Color Finish

Wall and roof panels shall have a factory applied polyvinylidene fluoride finish on the exposed side. The exterior finish shall consist of a baked-on topcoat with an appropriate prime coat. Color shall be a light earthtone. The exterior coating shall be a nominal 1 mil (0.025 mm) thickness consisting of a topcoat of not less than 0.7 mil (0.018 mm) dry film thickness and the paint manufacturer's recommended primer of not less than 0.2 mil (0.005 mm) thickness. The interior finish shall consist of the manufacturer's recommended thickness primer coating.

### 2.3.6 Accessories

Flashing, trim, fascia, caps, diverters, and similar metal accessories shall be the manufacturer's standard products. Exposed metal accessories shall be finished to match the building finish.

Molded closure strips shall be bituminous-saturated fiber, closed-cell or solid-cell synthetic rubber

or neoprene, or polyvinyl chloride premolded to match configuration of the roofing or siding and shall not absorb or retain water.

## 2.4 FASTENERS

Fasteners shall be as recommended by the manufacturer to meet the design strength requirements.

## 2.5 SKYLIGHT

Skylight panels shall be fabricated of glass-fiber reinforced polyester or extruded cellular thermoplastic polycarbonate panels conforming to ASTM D 3841, weighing not less than 8 ounces per square foot (2.4 kg/m<sup>2</sup>). Size and color of skylight panels shall be as indicated on the Drawings.

## 2.6 WIND POWERED TURBINE VENTILATOR

Ventilator shall be circular and fabricated of aluminum or zinc-coated steel; shall have manufacturer's standard factory color and finish, and shall be furnished with bird screens. Minimum uncoated thickness of materials shall be 0.018 inch (0.455 mm) for steel and 0.032 inch (0.813 mm) for aluminum. Ventilators shall be designed to provide weathertight construction and be externally braced. Empire Model TV 10G or equivalent.

## 2.7 ACCESS DOOR

The access door for the compressor building shall be a double swing door provided with an integral frame assembly. The door shall be constructed from insulated steel with the minimum opening when both doors are open shall be 70 inches (178 cm). Door shall hinge in the direction and be located as shown in the drawings. Exterior doors shall have top edges closed flush and sealed against water penetration. The door shall be provided with the following: Frame, door knob, 1-inch (2.5-cm) dead bolt, hinges, weather seal, and lock. Each side of the double swing door shall include a foot-operated latch to hold door in the open position. Four keys shall be provided for the dead bolt by Contractor. All hardware shall be weather resistant stainless steel. Contractor shall furnish all labor, materials, and equipment necessary for the complete installation of the door.

### 2.7.1 Steel Door

Steel access doors shall be constructed of 18 gauge, cold formed steel. The door shall be flush type construction with no face seams. The door frame shall be constructed of 16-gauge minimum cold formed steel and have a 2-inch (5-cm) face and 0.5-inch (1.3-cm) integral stops. Frame corners shall be mitered and internally welded with the frame anchors suitable for installation within the pre-engineered building. Door and frame shall have a baked on prime coat paint and semi-gloss enamel finish coat in an earthen color to match the compressor building.

## 2.8 SEALANT

Sealant shall be an elastomeric type containing no oil or asphalt. Exposed sealant shall be clear and shall cure to a rubber like consistency.

## 2.9 SHOP PRIMING

Ferrous surfaces shall be cleaned of oil, grease, loose rust, loose mill scale, and other foreign substances and shop primed. Primer coating shall be in accordance with the manufacturer's standard system.

## 2.10 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown on the Contract Drawings. R-values shall be determined at a mean temperature of 24 degrees C 75 degrees F in accordance with ASTM C 518. Roof and wall insulation shall be a standard product with the insulation manufacturer, factory marked or identified with insulation manufacturer's name or trademark and R-value. Flame spread and smoke development ratings of insulation, to include facing, must comply with the requirements of MIL HDBK 1008c. Prefabricated insulated sandwich panels may be used for siding and roofing. If exposed insulation is used it must be faced.

### 2.10.1 Blanket Insulation

Blanket insulation shall conform to ASTM C 991 or ASTM C 553.

### 2.10.2 Mineral Fiber

Insulation shall conform to ASTM C 612.

### 2.10.3 Insulation Retainers

Retainers shall be type, size and design necessary to adequately hold the insulation and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

## 2.11 Electric Wall Heater

Q Mark model GFR 2004T2 or equivalent (see ELECTRICAL DISTRIBUTION SYSTEM SECTION 16375)



## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

Dissimilar materials which are not compatible when contacting each other shall be insulated from each other by means of gaskets or insulating compounds. Improper or mislocated drill holes in panels shall be plugged with an oversize screw fastener and gasketed washer; however, panels with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces shall be kept clean and free from sealant, metal cuttings, excess material from thermal cutting, and other foreign materials. Exposed surfaces which have been thermally cut shall be finished smooth within a tolerance of 1/8 inch (3 mm). Stained, discolored or damaged sheets shall be removed from the site. Welding of steel shall conform to AWS D1.1; welding of aluminum shall conform to AA Design Manual.

#### **3.1.1 Framing Members and Anchor Bolts**

The building shall be designed and installed with appropriate seismic tie-downs to the Concrete Utility Pad shown on the Drawings and per Code requirements. Anchoring method shall be sized to resist the dead load and wind and erection stresses.

#### **3.1.2 Utility Connections**

The building shall be designed and installed to allow for efficient hook-up of power and telephone systems as well as mounting of compressed air lines and associated fittings, filters, valves, and regulators.

#### **3.1.3 Roofing and Siding**

Siding shall be applied with the longitudinal configurations in the vertical position. Roofing shall be applied with the longitudinal configurations in the direction of the roof slope. Accessories shall be fastened into framing members, except as otherwise approved. Closure strips shall be provided as indicated and where necessary to provide weathertight construction. Fastener and fastener spacing shall be in accordance with manufacture design.

#### **3.1.4 Doors and Sky Light**

Doors and Sky Light, including frames and hardware, shall be securely anchored to the supporting construction, shall be installed plumb and true, and shall be adjusted as necessary to provide proper operation. Joints at doors and sky light shall be sealed according to manufacturer's recommendations to provide weathertight construction.

Door shall operate freely. No interference between the door and jamb will be permitted. Clearances shall be specified in the manufacturer's recommendations. Door shall not rattle in the closed position.

### 3.2 FIELD PAINTING

Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same material used for the shop coat. Shop-primed ferrous surfaces exposed on the outside of the building and all shop-primed surfaces of doors and windows shall be painted with two coats of an approved exterior enamel. Factory color finished surfaces shall be touched up as necessary with the manufacturer's recommended touch-up paint.

**END OF SECTION**

## **SECTION 15100**

### **LNAPL COLLECTION AND STORAGE SYSTEM**

#### **PART 1 GENERAL**

##### **1.1 SECTION INCLUDES**

This section describes specifications and performance requirements for a light non-aqueous phase liquid (LNAPL) collection system. The Contractor shall provide all materials, equipment, and labor needed to install and operate system in accordance with the contract drawings. All connections, including tank adaptor, fittings, and hoses connecting the skimmers, pumps, sump head, to the collection storage tank shall be included.

##### **1.2 DESCRIPTION OF WORK**

The collection system shall collect LNAPL from two collection sumps located in a 150-foot long interception trench. Each sump shall have a dedicated skimmer and pump combination installed for the collection of LNAPL while minimizing the collection of groundwater. Groundwater depression shall not be performed to enhance LNAPL collection. The maximum apparent LNAPL thickness measured to date is approximately 3.5 feet. Actual formation thickness is likely 20 to 67 percent (0.7 to 2.3 feet) of the apparent thickness measured. LNAPL present consists of diesel fuel (fuel oil #2), sludge from mothballed ships, lubricating oil, and waste oil. Based on several samples from the site the LNAPL specific gravity is approximately 0.91 and the kinematic viscosity is approximately 40 centistokes (cSt), or 200 Saybolt seconds universal (SSU). Volume estimates performed show that approximately 9,000 to 13,500 gallons of LNAPL may be recoverable; however, only about 5 gallons per day is anticipated to enter the collection trench. The system shall be capable of continuous operation 24 hours per day, 7 calendar days per week.

##### **1.3 SUBMITTALS**

Government approval is required for submittals with a “GA” designation; submittals having an “FIO” designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES.

SD-04 Drawings

Shop Drawings; GA.

Submit to Contracting Officer (CO) for approval manufacturer’s literature, shop drawing, or other information pertaining to the installation, operation, and maintenance and repairs of equipment installed under this section, together with detailed parts lists, drawings, and/or photographs a minimum of 30 calendar days prior to installation.

## SD-18 Records

Spare parts list; FIO.

Within 30 calendar days of approval, the Contractor shall furnish a spare parts list for each different item of material and equipment specified with the shop drawings submitted. The list shall include parts, supplies, prices, and sources schedule. The Contractor shall furnish those spare parts and special tools, which are recommended by the manufacturer. The Contractor shall also provide 12 months supply of any expendable items and frequently replaced parts, as identified by the manufacturer. This shall include one additional pump/skimmer assembly, two extra skimmer hydrophobic elements, filter regulator replacement filters, and one extra Tank Full Shut Off.

## SD-19 Operation and Maintenance Manuals

Operation and Maintenance Manual for LNAPL Collection and Storage System; GA.

Submit operation and maintenance manual for the LNAPL Collection and Storage System in accordance with Section 01788 MAINTENANCE AND PROJECT CLOSEOUT. Manual shall include the following: (1) System description and as built construction diagrams; (2) Detailed description and a summary checklist of both startup and shutdown procedures; (3) Summary of recommended inspection tasks including frequencies and inspection field form; (4) Summary of recommended maintenance including frequencies; (5) Troubleshooting guide; (6) skimmer and pump repair procedures; (7) LNAPL transfer and disposal procedures; (8) Parts lists including potential suppliers with address and phone number; (9) Vendor supplied instruction manuals shall be included as an appendix; and (10) collection tank gauging chart to convert gauging information measured to 0.01 feet into gallons.

## PART 2 PRODUCTS

### 2.1 SKIMMERS

One skimmer (selective LNAPL only) shall be installed in each collection sump at the oil/water interface to collect LNAPL. Each sump is constructed from 24-inch (61 cm), which has an inside diameter of approximately 22-inches (56 cm). Therefore the skimmers shall be 21-inch-diameter or smaller. The skimmer shall not collect water, no more than 0.5 gallons (1.9 liters) of water per hour shall be collected by a skimmer unit. Contractor shall minimize the collection of water by the LNAPL collection system. The skimmer shall remove LNAPL to a sheen {= 0.01 inches (0.03 cm)}. The skimmer shall either float at the oil/water interface or be hung in the sump at a specific height that allows a 36-inch (90 cm) minimum range of travel to accommodate groundwater fluctuations. The skimmer shall accommodate a daily groundwater fluctuation of 3 feet (1 meter) minimum, which is possible at the site because of tidal influences. The skimmer shall be adjusted as

necessary to account for seasonal changes in the groundwater elevation. Skimmers used in the collection system shall have removable hydrophobic elements for cleaning or replacement. Two replacement elements; one of each size specified above (for example 55 mesh for heavy oils and 110 mesh for light to medium oils) shall be provided. Additionally, two skimmer rebuild kits shall be included and available at the site. At a minimum the kits shall include replacement O-Rings.

Collected LNAPL from each skimmer shall be evacuated from the skimmer by a dedicated bladder pump discussed in Section 2.2 PUMPS. The collection system skimmer shall be compatible with specific gravity ranging from 0.78 to 0.94 and viscosity ranges up to 200 cSt (900 SSU). LNAPL present consists of diesel fuel (fuel oil #2), sludge from mothballed ships, lubricating oil, and waste oil. To meet this requirement two different sized hydrophobic elements shall be included. Sizes will vary depending on manufacture but are expected to be 55 mesh for heavy oils and 110 mesh for light to medium oils. Clean Environmental Equipment (CEE) Oakland, California (800-537-1767) SOS-4-002 (TIDAL) or CO-approved equal are acceptable for use in the collection system.

## 2.2 PUMPS

The pumps shall be pneumatically operated bladder pumps capable of pumping against a total static head of 30 feet (9 meters). Additionally, the pumps must transfer fluid to the storage tanks located up to 200 feet (61 meters) away. Air supply and fluid discharge hoses to and from the pumps shall be 3/8-inch inside diameter (ID) minimum. Each pump in the LNAPL collection system shall independently transfer collected liquids directly to the aboveground storage tank. The collection system pumps shall be compatible with specific gravity ranging from 0.78 to 0.94 and viscosity ranges up to 200 cSt (900 SSU). The collection system pump materials shall be resistant to degradation by LNAPL.

The collection pumps shall transfer LNAPL from the collection sumps to the LNAPL collection and storage tank specified in Section 15150 TEMPORARY LNAPL STORAGE TANK located between approximately 20 and 60 feet (6.1 and 18.3 meters) from the collection trench specified in Section 02317 LNAPL COLLECTION TRENCH depending on the preload stockpile sequence. The maximum line run between the furthest sump and the storage tank shall be 200 feet (61 meters). The pump shall be located inside the collection sump. Trench, sump, and equipment pad locations are shown on the drawings. Each skimmer/pump combination shall be capable of continuous operation with a minimum capability of pumping approximately 160 gallons per day (gpd) (600 liters per day) from its respective sump. A sight glass with ball motion indicator shall be installed near the sump head to visually check pump status.

### 2.2.1 Pneumatic Pumps

This section describes specifications for a system that utilizes pneumatically operated and controlled LNAPL pumps. The pneumatic system runs solely on compressed air and shall be provided complete with all necessary equipment and connections to collect LNAPL from the recovery sumps. The only electrical power required shall be to drive the compressor. The compressor shall

be located at the utility pad as shown in the drawings and is described in detail in Section 15400 AIR SUPPLY. Pneumatic pumps (CEE Genie-24 Bladder pump or CO-approved equal) shall be serviceable in the field and supplied with two pump repair kits. At a minimum the pump repair kit shall be provided with replacement seals, check valves, and internal pneumatic valves. One extra pump shall be provided for backup. Therefore, a total of three pumps shall be supplied by the Contractor. The system shall include pneumatic controller(s) to operate each skimmer/pump unit. The pneumatic controller can be located either externally or internally within the pump. Each pump shall shut off automatically if the collection tank reaches a full condition.

## 2.2.2 Associated Skimmer and Pump Equipment

### 2.2.2.1 Air and LNAPL Transfer Hoses

All air supply hoses between air supply manifold and the individual pumps located near the sump shall be 3/8-inch-inside-diameter (1 cm) minimum and be blue in color. All air supply lines shall be rated for a working pressure of 200 psi (1.4 MPa) or greater and be made out of synthetic rubber with cord reinforcement. LNAPL discharge hoses connecting the pumps to the collection tank shall be steel-reinforced nylon core with red urethane cover. They shall have a working pressure range between 3,500 and 4,500 psi (24.1 and 30.6 MPa). The LNAPL hose steel-reinforcing shall be electrically grounded to the end fitting to reduce static electricity build-up. Air supply and LNAPL discharge lines shall be different colors. (CEE fuel and air hose or equivalent).

### 2.2.2.2 Pump Regulators and Filters

Each pneumatic skimmer pump combination shall have one independent air filter and regulator combination fitted with one liquid filled 0 to 100 pounds per square inch gauge (psi) (0 to 0.7 MPa) scale pressure gauge plus one extra for backup. The regulator shall be capable to adjust air pressure to the pump between 0 psi to maximum system pressure of 100 psi (0.7 MPa). Filter shall remove particulate and moisture not removed by the main filtration system located at the utility pad. The filter body shall have a automatic moisture drain and replaceable filter cartridges. Two replacement filters shall be provided. (CEE or equivalent)

### 2.2.2.3 Gauges

Pressure gauges used on the LNAPL collection system shall be liquid (silicone) filled 0 to 100 psi (0.7 MPa) scale pressure gauges. One pressure gauge each shall be provided for each pneumatic skimmer pump combination plus one extra for backup. Additionally, one pressure gauge shall be mounted to the air distribution manifold at or near the tank-full shut-off. All pressure gauges shall have a stainless steel or brass body and have minimum 2.5 inch (6 cm) dial face.

### 2.2.2.4 Pump Cycle Counter

Each pump used on the LNAPL collection system shall be supplied with a pneumatic pump cycle counter which are air pulse detecting. The counter shall count each pump cycle and have the ability

to count up to 999,999 cycles before turning over. The counter shall be weather proof and be mounted outside of the collection sump in the air supply line between the pumps air filter/regulator and the bladder pump. CEE pneumatic Pump Cycle Counter or equivalent.

## 2.3 TANK-FULL SHUT-OFF SWITCH

Two redundant tank-full-shut-off (TFSO) switches shall be connected between all pumps operating in the collection system and the main air supply line. This shall be done by connecting the main air supply line from the utility pad into the first TFSO which shall be tank mounted before the air is supplied to the pumps. The second TFSO shall be a two piece unit with a controller and a TFSO sensor which mounts in the AST. Only one of the two ASTs shall be connected to the system at any given time. The controller shall supply air to the pumps and be connected to the TFSO sensor.

Therefore, if the tank is in a full condition either TFSO cuts the air supply to all of the pumps. The tank mounted TFSO sensor from the second TFSO shall be mounted in one LNAPL collection tank and operating at all times. Additionally, one extra TFSO switch shall be located at the site for backup in the event of a malfunction. Therefore, three tank-full-overflow switches shall be supplied by the Contractor. The tank full/overflow shut-off sensor shall be pneumatically operated.

Both TFSO switches shall turn the pumps off when the liquid level in the collection tank is 95 percent of full capacity. The two TFSOs shall be installed in a way that they can easily be transferred between the primary and secondary ASTs. It shall also turn the system off when an improper hose connection to the switch or line break were to occur within the TFSO switch. The TFSO switch shall have manual reset button that must be pressed before the system will operate. If sensors or fittings within the TFSO switch become clogged the system shall turn off. The air supply lines for the shut-off sensors shall be fitted with standard quick-connect-style pneumatic fittings. The TFSO shall be supplied with a 5 micron particulate filter contained in a metal bowl with a float drain. CEE TFSO-TM or CEE TFSO-CP or CO-approved equal.

## 2.4 AIR LINE MANIFOLD AND QUICK CONNECTS

The collection system shall be provided with one air distribution manifold to direct air to a minimum of 4 locations. Each branch shall have an independent shut-off ball valve and pressure gauge. Quick connects shall be used whenever possible on air and LNAPL transfer lines to allow for easy connection and disconnection during adjustment, cleaning or repairs. Quick connects shall be constructed from brass or stainless steel and be double locking (Snap-Tite, Inc., Union City, Pennsylvania (814-438-3821) model B/SVHC-4-4 and B/SVHN-44 or equivalent); meaning both sides of the quick connect have check valves, which prevent discharge of liquid or air when disconnected. In addition, quick connects used on lines that contain LNAPL shall have a twist lock mechanism to prevent accidental disconnection. Two different styles of quick connect fittings shall be used on the inlet and exit of the tank-full-shut-off to eliminate the possibility for improper connection. Additionally, the quick connects used on air supply hoses shall be a different type than those used on LNAPL collection hoses.

## 2.5 SUMP HEAD

The Contractor shall supply sump head surface cover that supports the skimmer in the sump, keeps debris out of the sump, and connects lines or hose(s) from down hole to aboveground equipment and the storage tank. A vent shall be installed using a brass or stainless steel 90°. The sump head shall be constructed to allow for easy adjustment of the skimmer depth without sump head removal and shall have two 2-inch (5 cm) National Pipe Thread (NPT) ports to gauge liquid level in the sump. The slip cap shall be schedule 40 or 80 PVC and have compression or quick connect fittings for skimmer depth adjustment. The sump head shall be constructed from schedule 80 polyvinyl chloride (PVC) and HDPE, see drawings for additional details. The slip cap used on the sump head shall be CEE or Equivalent. The sump head shall be constructed so that the skimmer and pump assembly can be removed from the sump or adjusted via the slip cap so the rest of the sump head can remain in place.

## 2.6 STORAGE BOX

A weatherproof lockable storage box approximately 16 cubic feet in volume and at least 7 feet long shall be supplied at the collection/storage equipment pad next to the ASTs to keep extra skimmers, pumps, necessary tools and spare parts available. The box shall be constructed from aluminum, have a top mounted lid, and have on handle on each end that when used is capable of lifting the box with a load of approximately 50 pounds. Additionally, an emergency response kit shall also be located on the collection/storage equipment pad, it shall have oil absorbent towels, oil absorbent booms, drum liners, and two 20 pound minimum size fire extinguishers.

## 2.7 LNAPL COLLECTION EQUIPMENT PAD

The LNAPL collection and storage equipment pad shall be approximately 225 square feet, 15 feet (5 meter) square in size and constructed from crushed rock and graded level. The pad shall have 1.5 foot (0.5 meter) high embankment made with native material to promote infiltration into the landfill, should a leak occur from the storage system. The side slopes of the embankment shall be no steeper than 2H:1V. Both LNAPL storage tanks, the LNAPL collection/storage system box shall be located on the LNAPL collection and storage equipment pad. In addition, the storage tank will be moved to accommodate the pre-load pile up to two times. Therefore, the pad shall be constructed at least two times. The LNAPL storage tanks discussed in Section 15150 TEMPORARY LNAPL STORAGE TANK are aboveground surface tanks (ASTs) that shall be located on this pad. Two planned locations for the pad are shown on the Drawings.

## 2.8 MAINTENANCE

The Contractor shall provide required maintenance and timely repairs to keep the collection system in good working condition. Contractor shall minimize the collection of water by the system. The Contractor will operate and maintain system for 12 months. Inspection of the system to confirm proper performance, adjust skimmers, gauge collection tank, and gauge sumps for product thickness shall be performed weekly.



## 2.9 LNAPL DISPOSAL

Contractor shall subcontract for LNAPL disposal services from a licensed and insured hazardous waste management firm. LNAPL disposal shall be in accordance with Section 02120 TRANSPORTATION AND DISPOSAL OF WASTE MATERIALS. Disposal shall also include any residual water collected by the collection system. Services shall include the following: (1) sample collection and analysis; (2) hazardous waste classification and manifesting; (3) LNAPL removal and transportation; and (4) final disposal.

## PART 3 EXECUTION

### 3.1 INSTALLATION

Equipment shall be installed as shown and in accordance with written instructions of the manufacturer. Hoses and control cable shall be secured to the ground surface to prevent unintended movement and possible chaffing.

The Contractor shall take precautions to protect pump air supply and LNAPL collection hoses from potential damage during construction activities. If these hoses are damaged they shall be repaired or replaced immediately at the Contractor's expense.

Electrical installation shall be in accordance with the notes on the Contract Drawings and Division 16 of the Specifications.

### 3.2 TESTING

After installation of the LNAPL collection system is complete, operating tests shall be carried out to ensure that the system installed operates properly and meets specifications. If no LNAPL is present in the collection trench sumps the test shall confirm that the system does not collect groundwater. No more than 0.5 gallons of water per hour shall be collected by the system. All products shall be carefully inspected for defects in workmanship and material; debris and foreign matter shall be cleaned out of all equipment; all operating mechanisms shall be tested to check their properly functioning. Pumps and other equipment, which do not operate easily or are otherwise defective shall be repaired or replaced.

The Contractor shall pressure test all air supply and LNAPL discharge lines including gauges, valves and distribution manifolds. If any deficiencies are revealed during any test, such deficiencies shall be corrected and the tests repeated at Contractor's expense.

### 3.3 MANUFACTURER’S FIELD SERVICE

#### 3.3.1 Manufacturer’s Representative

Services of the manufacturer’s representative, who is experienced in the installation, adjustment and operation of the equipment specified, shall be provided for a minimum of 8 hours at the site. The representative shall supervise the final installation, adjustment, and testing of the equipment. Prior to startup, a factory representative shall inspect the equipment connections. The manufacturer’s representative shall inspect the final installation and supervise the adjustment and testing of the equipment. The Contractor shall schedule and coordinate the testing to be completed in the presence of a Government representative.

#### 3.3.2 Field Training

The Contractor shall conduct a training course of operating staff as designated by the CO. The training period, for a total of 16 hours of normal working time, shall start after the system is functionally complete but prior to final acceptance tests. The field instructions shall cover the topics included in the Operating and Maintenance Manual.

### 3.4 POSTED FRAMED INSTRUCTIONS

Operating instructions, including shut down procedures, tolerances for skimmer depth, and equipment precautions shall be posted in the equipment storage box and in the compressor building as specified on the drawings. Operating instructions explaining preventive maintenance procedures and checks to assure the system is operating normally and safely shall be submitted for approval prior to posting. Methods of checking the system for normal safe operation; procedures for operating the system; and procedures for safely starting and stopping the system shall be prepared in typed form, framed and posted at the site. Catalog cuts are not acceptable.

**END OF SECTION**

## **SECTION 15210**

### **AIR SUPPLY SYSTEM**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)**

ANSI B19.3                      Pressure Vessel Safety Standards

ANSI B93.45M                Refrigerant air dryers

##### **AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) INTERNATIONAL**

ASME A112.6.1M            Plumbing fixture supports

ASME B1.20.1                (1983; R 1992) Pipe Threads, General Purpose (Inch)

ASME B16.34                Valves – Flanged, threaded, and welded end

ASME B31.3                 Pressure Relief

ASME B40.1                 (1991) Gauges - Pressure Indicating Dial Type - Elastic Element

ASME BPV VIII Div 1      (1998) Boiler and Pressure Vessel Code; Section VIII, Pressure  
Vessels Division 1 - Basic Coverage

##### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

ASTM D3308                PTFE Resin Skived Tape

##### **MANUFACTURERS STANDARDIZATION SOCIETY (MSS) OF THE VALVE AND FITTINGS INDUSTRY**

MSS SP-25                  (1998) Standard Marking System for Valves, Fittings, Flanges and  
Unions

MSS SP-58	(1993) Pipe Hangers and Supports - Materials, Design and Manufacture
MSS SP-80	(1997) Bronze Gate, Globe, Angle and Check Valves
MSS SP-83	(1995) Class 3000 Steel Pipe Unions Socket-Welding and Threaded
MSS SP-110	(1996) Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

NATIONAL ASSOCIATION OF PLUMBING-HEATING-COOLING  
CONTRACTORS (NAPHCC)

NAPHCC Plumbing Code	(1996) National Standard Plumbing Code
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SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE J 1508	Hose Clamps
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## 1.2 SYSTEM DESCRIPTION

This section describes the specifications and requirements for the air supply system that will be used to power a LNAPL collection system discussed in Section 15100 LNAPL COLLECTION AND STORAGE SYSTEM. The air supply system covers the all components necessary to deliver high quality low humidity air with minimal particulate from the utility pad to the LNAPL collection system location shown on Drawings. Components covered include the air compressor, regulator, air filtration, refrigerated air dryer, mechanical system plumbing including hose, piping, valves and fittings. The majority of the air supply components shall be located in the compressor building on the utility pad. All piping within the compressor building shall be metallic pipe. Air supply lines outside of the building shall be flexible hose. Where the hose crosses a traffic area of other area that could be a hazard to the hose it shall be protected inside iron or steel casing. The Contractor shall furnish all materials, tools, equipment, labor, and supervision to accomplish the work described in this section.

## 1.3 GENERAL REQUIREMENTS

### 1.3.1 Standard Products

Specified materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products. Specified equipment shall essentially duplicate equipment that has performed satisfactorily at least two years prior to bid opening. Nominal sizes for standardized products shall be used. Equipment including the compressor, filters,

pipe, valves, fittings and other appurtenances shall be supported by a service organization that is, in the opinion of the Contracting Officer (CO), reasonably convenient to the site.

### 1.3.2 Components

All equipment and appurtenances shall be new products and rated appropriately for the equipment and connecting pipe being used.

### 1.3.3 Identification

Each piece of pipe shall bear the American Society for Testing and Materials (ASTM) designation and all other markings required for that designation as appropriate. Valves shall bear a securely attached tag with the manufacturer's name, valve model number, and valve identification permanently displayed and be marked in accordance with MSS SP-25.

### 1.3.4 Electrical Work

Motors, motor controllers, and motor efficiencies shall conform to the requirements of Section 16375 ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND. Electrical motor-driven equipment specified herein shall be provided complete with motors. Equipment shall be rated at 240 volt, 60 hertz (Hz), single phase, AC unless otherwise indicated. Where a motor controller is not provided in a motor-control center on the electrical drawings, a motor controller shall be as indicated in this Section or the Drawings. Motor controllers shall be provided complete with properly sized thermal-overload protection in each ungrounded conductor, auxiliary contact, and other equipment, at the specified capacity, and including an allowable service factor.

## 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals not having a "GA" designation are for information only (FIO). When used, a designation following the "GA" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Compressor; FIO.

Detail drawings consisting of illustrations, schedules, performance charts, instructions, brochures, diagrams, and other information to illustrate the requirements and operations of each system. Detail drawings for the compressor; dimensions, support points; schematic diagrams and wiring diagrams or connection and interconnection diagrams. Detail drawings shall indicate clearances required for maintenance and operation.

Compressor Controller; FIO.

Complete electrical schematic interconnection and connection diagram for each piece of mechanical equipment having more than one automatic or manual electrical control device.

#### SD-03 Product Data

Vibration-Absorbing Features; FIO.

Details of vibration-absorbing features, including dimensions and specifications.

#### SD-07 Certificates

Materials and Equipment; GA.

Where materials or equipment are specified to comply with requirements of AGA, or ASME, proof of such compliance. The label or listing of the specified agency will be acceptable evidence. In lieu of the label or listing, a written certificate may be submitted from an approved, nationally recognized testing organization equipped to perform such services, stating that the items have been tested and conform to the requirements and testing methods of the specified agency. Where equipment is specified to conform to requirements of the ASME Boiler and Pressure Vessel Code, the design, fabrication, and installation shall conform to the code.

### 1.5 DELIVERY, STORAGE, AND HANDLING

Materials delivered and placed in storage shall be stored with protection from the weather, excessive humidity variation, excessive temperature variation, dirt, dust and/or other contaminants. Proper protection and care of material before, during and after installation is the Contractor's responsibility. Any material found to be damaged shall be replaced at the Contractor's expense. During installation, piping shall be capped to keep out dirt and other foreign matter. Materials shall be stored with protection from puncture, dirt, grease, moisture, mechanical abrasions, excessive heat, ultraviolet (UV) radiation damage, or other damage. Pipe and fittings shall be handled and stored in accordance with the manufacturer's recommendation.

### 1.6 PROJECT/SITE CONDITIONS

The Contractor shall become familiar with details of the work, verify dimensions in the field, and advise the CO of any discrepancy before performing any work.

### 1.7 SPARE PARTS

Within 30 calendar days of approval, the Contractor shall furnish a spare parts list for each different item of material and equipment specified with the shop drawings submitted. The list shall include parts, supplies, prices, and sources schedule. The Contractor shall furnish those spare parts and special tools, which are recommended by the manufacturer. The Contractor shall also provide 12 months supply of any expendable items and frequently

replaced parts, as identified by the manufacturer. This shall include replacement air filters, compressor oil, and filter bowl O-Rings.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

Galvanized steel, stainless steel, or brass pipe shall be used for air supply system piping, or as indicated on the Drawings. Pipe schedules shall be selected based on service requirements. Pipe fittings shall be compatible with the applicable pipe materials. Pipe threads (except dry seal) shall conform to ASME B1.20.1. Plastic pipe shall not be installed in the compressed air piping system.

#### **2.1.1 Pipe Joint Materials**

Joints materials shall conform to the following:

- a. Polytetrafluoroethylene (PTFE) Tape: PTFE Tape, for use with Threaded Metal Pipe, ASTM D 3308.
- b. Pipe thread compound (pipe dope) with PTFE.

#### **2.1.2 Miscellaneous Materials**

Miscellaneous materials shall conform to the following:

- a. Hose Clamps: SAE J 1508
- b. Supports for Off-The-Floor Plumbing Fixtures: ASME A112.6.1M
- c. Gauges - Pressure and Vacuum Indicating Dial Type - Elastic Element: ASME B40.1

### **2.2 COMPRESSED AIR SYSTEM COMPONENTS**

#### **2.2.1 Air Compressor**

Air compressor unit shall be a factory-packaged assembly, including 3 to 5 horsepower (hp) single-phase, 200 to 240 volt motor with switches, wiring, accessories, and motor controller in a National Electrical Manufacturers Association (NEMA) 250, Type 4 enclosure. The motor controller shall have thermal overload protection and a manual on-off switch.

Compressor shall supply air at a minimum of 12 standard cubic feet per minute (scfm) (340 liters) at 100 pounds per square inch gauge (psig) (0.7 mega-Pascal [MPa]).

Compressor shall be single stage oil lubricated reciprocating type with maximum pressure rating of 125 pounds per square inch (psi) (0.86 MPa). The compressor shall be tank-mounted on a horizontal air receiver discussed below and be manufactured to comply with Underwriters Laboratories (UL) listing requirements. Air compressors shall have

manufacturer's name and address, together with trade name, and catalog number on a nameplate securely attached to the equipment. The compressor shall start and stop automatically at upper and lower pressure limits of the system. The start-stop pressure switch shall turn on at 95 psi (0.65 MPa) and off at 125 psi (0.86 MPa). Guards shall shield exposed moving parts such as the motor and associated V-Belt.

An intake air filter and silencer shall be provided with the compressor. Aftercooler and moisture separator shall be installed between compressors and air receiver to remove moisture and oil condensates before the air enters the receiver. Aftercoolers shall be either air-cooled, as indicated. The air shall pass through a sufficient number of tubes to affect cooling. Tubes shall be sized to give maximum heat transfer. Cooling capacity of the aftercooler shall be sized for the total capacity of the compressor. Means shall be provided for draining condensed moisture from the receiver by an automatic float type trap. Capacities of the air compressor and receiver shall be as indicated on the drawings.

#### 2.2.2 Air Receiver

The receiver shall be designed for 200 psi (1.38 MPa) working pressure and have a capacity of 120 gallons (454 liters). The air receiver shall be considered a pressure vessel. Receivers shall be factory air tested to 1-1/2 times the working pressure. Receivers shall be equipped with safety relief valves and accessories, including pressure gauges, an automatic drain, and a manual shut off. Pressure relief devices shall conform to the requirements of ASME B31.3. The outside of air receivers may be galvanized or supplied with commercial enamel finish. Receivers shall be designed and constructed in accordance with ASME Boiler Pressure Vessel Code Section VIII Div 1 and American National Standards Institute (ANSI) B19.3 Safety Standards and shall have the design working pressures specified herein. A display of the ASME seal on the receiver or a certified test report from an approved independent testing laboratory indicating conformance to the ASME Code shall be provided. ASME coded pressure vessels must not be modified by Contractor.

#### 2.2.3 Intake Air Supply Filter

Dry type air filter shall be provided having a collection efficiency of 99 percent of particles larger than 10 microns. Filter body and media shall withstand a maximum 125 psi (862 kilo Pascals [kPa]) capacity. Oil bath filters shall NOT be used.

#### 2.2.4 Pressure Regulator

The air system shall be provided with the necessary regulator valve to maintain the desired pressure for the installed equipment. System components shall normally operate at pressures between 60 and 100 psi (0.4 and 0.7 MPa). The regulator shall be designed for a maximum inlet pressure of 125 psi (862 kPa) and a maximum temperature of 200 degrees Fahrenheit (°F) (93 degrees Celsius [°C]). Regulators shall be single-seated, pilot-operated with 1/4-inch National Pipe Thread (NPT) gauge port, and 1/2-inch NPT or larger threaded connections. The regulator shall be provided with an adjustment knob for adjusting the pressure differential from 0 to 125 psi (0 kPa to 862 kPa) and valve shall include a liquid filled



pressure gauge with 0 to 160 psig scale. Regulator shall be sized as indicated on the drawings. Parker Compact 06R318AC or equivalent.

#### 2.2.5 Pre-filter (Coalescing and Particulate)

The pre-filter shall be of coalescing type capable of removing liquid aerosols and larger particles trapped in the air stream. Filter shall be provided with auto drain, pressure differential indicator, and ½-inch (1.3 cm) NPT or larger threaded connections. Parker Compact 11F Series Model 11F38EC or equivalent.

#### 2.2.6 Refrigerated Air Dryer

Refrigerated air dryer shall supply air at dewpoint of (minus) –40 °F/C at atmospheric pressure to avoid equipment freeze-up problems during winter. Air dryer shall have an automatic drain, be rated at 20 scfm (566 liters per minute), have ½-inch (1.3 cm) NPT or larger threaded connections, and run off 115 volt, 60 Hz power. Unit shall conform to ANSI B93.45M and operate with inlet conditions of 100 psig (0.7 MPa), 100 °F (38 °C) ambient temperature with less than 5 psi (35 kPa) pressure drop. Pneumatec Model ADA-20 or equivalent.

#### 2.2.7 After Filter (Particulate)

The after filter shall be a particulate filter capable of removing sub-micron particles. Filter shall be provided with auto drain, pressure differential indicator, and ½-inch (1.3 cm) NPT or larger threaded connections. Parker Model HN2S-3PUD or equivalent.

#### 2.2.8 Pressure Gauges

Pressure gauges used on the air supply system shall be liquid (silicone) filled 0 to 160 psig (1 MPa) scale. One pressure gauge each shall be mounted on the air distribution pipe before the regulator and the main air supply regulator. All pressure gauges shall have a stainless steel or brass body and have minimum 2.5 inch (6.3 cm) dial face. Duro-United or equivalent.

### 2.3 VALVES AND FITTINGS

The valves shall be suitable for the intended service. Renewable parts are not to be of a lower quality than those specified. Valves shall be the same size as adjoining pipe unless otherwise specified. Valve ends shall be compatible with adjacent piping system. The valve shall be sized to operate at the full range of pressures and velocities. Valves shall be provided on supplies to equipment and fixtures. Valves shall be bronze with threaded bodies for pipe connections. Pressure ratings shall be based upon the application, 125-psi (0.85 MPa) minimum. Valves shall conform to the standards provided in Table 15210-1.

**Table 15210-1  
VALVE STANDARDS**

<b>Description</b>	<b>Standard</b>
Ball Valves, threaded	MSS SP-110
Bronze Gate, Globe, Angle, and Check Valves	MSS SP-80

### 2.3.1 General Purpose Ball Valves

General purpose ball valves shall conform to the following: Ball valves used for the air supply system shall be end entry type with bronze or brass bodies and threaded, in accordance with ASME B1.20.1, full bore ports. Valves shall have PTFE seats and packing, stainless steel balls and hand lever operators. The ball valves shall be provided with NPT connects and be turned on or off in a minimum of 90 degrees of rotation. Valves shall be rated for 150 psig (1.2 MPa) service at 150 °F (66 °C) and shall conform to ASME B16.34. A union shall be installed adjacent to the valves to provide access to the seat when the valve is located between fixed equipment or piping. All valves used in the compressed air system shall be ¾ -inch (1.9 cm) NPT ball valves unless otherwise indicated on the Drawings.

### 2.3.2 Fittings

Fittings necessary to connect the compressed air system components shall be made of galvanized steel, stainless steel, or brass. The same manufacturer shall supply all fittings. Fittings shall join to the pipe or hose assembly as specified. Fittings shall be supplied in accordance with the Pipe Schedule in the Drawings.

## 2.4 COMPRESSED AIR LINES

### 2.4.1 Compressed Air Pipe

Compressed air piping shall be galvanized, stainless steel, or brass suitable for 125 psig (862 kPa working pressure. Compressed air piping shall be legibly and permanently marked at both ends with the name of the system and the direction of flow. Piping within the compressor building shall be ¾-inch-diameter (1.9 cm) unless otherwise noted on the Drawings.

### 2.4.2 Compressed Air Hose

Compressed air hose shall consist of 1-inch-inside (25 millimeter{mm}) diameter synthetic rubber core with braid reinforcement suitable for 175 psig (1.2 MPa) working pressure. Burst pressure shall be 700 psig (4.8 MPa) minimum. The hose shall have a minimum burst pressure of 4 times the rated working pressure. The minimum bend radius shall be 10 times the hose internal diameter. Compressed air hose shall have terminals legibly and permanently marked at both ends with the name of the system and the direction of flow. The hose shall be colored blue to identify air supply and differentiate between non air lines. Parker Series 801 General Purpose Hose Model 801-16 BLU or equivalent.

#### 2.4.2.1 Hose Clamps

The air supply hoses shall be secured to transition fittings using stepless ear clamps made from 300 series stainless steel to provide an uninterrupted 360-degree seal around the circumference of the hose to prevent leaking. Oteker brand stepless ear clamps or equivalent.

#### 2.4.2.2 Hose Joints

Hose shall be joined using internally inserted hose barbs fittings (hose mender) where no disconnection is anticipated. Minimize the number of joints, where possible hose shall be continuous. Where disconnection is likely, interconnections shall be accomplished through integral couplers configured as quick connect interlocking couplings.

#### 2.4.2.3 Safety Straps

Air supply hose shall be secured with safety straps to prevent whipping in the event of accidental disconnect per EM 383-1-1 (page 340, paragraph. 20.A.16).

### 2.5 PROTECTIVE CASING

The air supply hose shall be protected from soil stockpiles and live equipment loads where shown on the Drawings using 4-inch-diameter carbon steel or ductile cast iron casing. Schedule 40 or 80 seamless or welded seam pipe shall be used.

### 2.6 VIBRATION-ABSORBING FEATURES

#### 2.6.1 Vibration Absorbing Pads

Vibration pads for floor attachment shall be as recommended by compressor manufacturer. The compressors shall be isolated from the building structure or utility pad by approved vibration-absorbing features, unless otherwise shown. The vibration absorbing material shall be a standard product with printed load rating. Piping connected to compressor shall be provided with flexible connectors or expansion joints.

#### 2.6.2 Expansion Joints

The Contractor shall provide all structural work and equipment required to control expansion and contraction of piping. The Contractor shall verify that the anchors, guides, and expansion joints provided adequately protect the piping systems.

The expansion joint shall be braided stainless steel hose with carbon steel NPT threaded connections. The expansion joint shall be sized to match the associated piping. The maximum allowable working pressure shall be 150 psig (1.03 MPa) at 120 °F (48.9 °C). The expansion joint shall be designed to eliminate vibration, pulsation, thermal expansion, and piping misalignment.

## **PART 3 EXECUTION**

### **3.1 GENERAL INSTALLATION REQUIREMENTS**

Compressor shall be secured to the utility pad using lag bolts with anchors or approved equal. Bolts shall be galvanized or stainless steel.

#### **3.1.1 Protection of Fixtures, Materials, and Equipment**

Pipe openings shall be closed with caps or plugs during installation. Fixtures and equipment shall be tightly covered and protected against dirt, water, chemicals, and mechanical injury. Upon completion of the work, the fixtures, materials, and equipment shall be thoroughly cleaned, adjusted, and operated. Safety guards shall be provided for exposed rotating equipment.

##### **3.1.1.1 Compressed Air Lines**

Compressed air piping shall be installed as specified for water piping and suitable for 125 psig (862 kPa ) working pressure. Compressed air piping shall have supply lines and discharge terminals legibly and permanently marked at both ends with the name of the system and the direction of flow. Manual shut off valves shall be installed immediately before the master pressure regulator and outside the compressor building before transitioning to hose. Additionally, one valve shall be installed before the refrigerated air dryer to manually depressurize the system to perform maintenance on the filters. Compressed air hose shall be installed as specified in the Drawings. Contractor shall avoid routing hose on or through native materials or equipment, which could damage the hose such as angular gravel or metal debris. The Contractor shall take precautions to protect main air supply line from potential damage during construction activities. If line is damaged it shall be repaired or replaced immediately at contractors expense.

##### **3.1.1.2 Hose Clamps**

Hose clamps shall be made from 300 series stainless steel and provide an uninterrupted 360 degree seal around the circumference of the hose to prevent leaking. Oteker stepless ear clamps or equivalent shall be used to secure air supply hose to fittings. Contractor shall supply extra clamps and two straight jaw clamp pincers for use after construction activities are complete.

##### **3.1.1.3 Protective Casing**

The air supply hose shall be protected from soil stockpiles and live equipment loads where shown on the Drawings. The Contractor shall install protective casing and route compressed air hose through it as appropriate.

### 3.1.2 Air Filters

Air filters shall be installed in position where they can be serviced easily. Adequate spacing shall be given to remove filter bowl for filter exchange and draining.

### 3.1.3 Joints

Installation of pipe and fittings shall be made in accordance with the manufacturer's recommendations. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints shall be made up with fittings of compatible material and made for the specific purpose intended.

#### 3.1.3.1 Threaded

Threaded joints shall have American Standard taper pipe threads (NPT) conforming to ASME B1.20.1. Only male pipe threads shall be coated with pipe thread compound or shall have a polytetrafluoroethylene tape applied.

#### 3.1.3.2 Unions

Unions and mechanical couplings shall not be concealed in walls, ceilings, or partitions. Unions shall be used where appropriate to facilitate easy installation and future disassembly for repairs.

### 3.1.4 Supports

The air supply filters, valves, and regulator within the compressor building shall be mounted to the inside wall using brackets and supports determined in the field. Pipe guides and brackets shall be installed to keep air supply pipes in accurate alignment, to direct the expansion movement, and to prevent buckling, swaying, and undue strain of the piping.

#### 3.1.4.1 Brackets

Where piping is run adjacent to walls the Contractor shall provide brackets to support equipment and piping.

### 3.1.5 Vibration-Absorbing Features

Mechanical equipment such as the compressors shall be isolated from the building structure or utility pad by approved vibration-absorbing features, unless otherwise shown. Each leg of the compressor shall have a standard isolation unit installed. The compressor shall be fastened to the floor (building foundation), together with intermediate isolation. Connecting bolts shall be galvanized or stainless steel. Piping connected to compressor equipment shall be provided with flexible connectors (expansion joint). Isolation unit installation shall limit vibration to manufactures specifications.

## 3.2 TESTS

### 3.2.1 Compressed Air Lines

Piping systems shall be filled with oil-free dry air or gaseous nitrogen to 125 psig (0.85 MPa) and hold this pressure for 2 hours with no drop in pressure.

### 3.2.2 Defective Work

If inspection or test shows defects, such defective work or material shall be replaced or repaired as necessary and inspection and tests shall be repeated. Repairs to piping shall be made with new materials. Caulking of screwed joints or holes will not be acceptable.

**END OF SECTION**

## **SECTION 16375**

### **ELECTRICAL DISTRIBUTION SYSTEM, UNDERGROUND**

#### **PART 1 GENERAL**

##### **1.1 REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. The most recent revision of the reference applies.

##### **AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)**

ANSI C12.4	(1984; R 1996) Mechanical Demand Registers
ANSI C12.10	(1987) Electromechanical Watthour Meters
ANSI C12.11	(1987; R 1993) Instrument Transformers for Revenue Metering, 10 kV BIL through 350 kV BIL (0.6 kV NSV through 69 kV NSV)
ANSI C29.1	(1988; R 1996) Electrical Power Insulators - Test Methods
ANSI C37.16	(1988; C37.16a; R 1995) Low-Voltage Power Circuit Breakers and AC Power Circuit Protectors - Preferred Ratings, Related Requirements, and Application Recommendations
ANSI C37.46	(1981; R 1992) Power Fuses and Fuse Disconnecting Switches
ANSI C37.50	(1989; R 1995) Switchgear, Low-Voltage AC Power Circuit Breakers Used in Enclosures - Test Procedures
ANSI C57.12.21	(1995) Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Single-Phase Distribution Transformers with High-Voltage Bushings; (High-Voltage, 34 500 Grd Y/19 920 Volts and Below; Low-Voltage, 240/120; 167 kVA and Smaller)
ANSI C80.1	(1995) Rigid Steel Conduit - Zinc Coated
ANSI C119.1	(1986) Sealed Insulated Underground Connector Systems Rated 600 Volts
ANSI C135.30	(1988) Zinc-Coated Ferrous Ground Rods for Overhead or Underground Line Construction

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 48	(1994a) Gray Iron Castings
ASTM A 123/A 123M	(1997a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153/A 153M	(1995) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM B 3	(1995) Soft or Annealed Copper Wire
ASTM B 8	(1993) Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B 117	(1997) Operating Salt Spray (Fog) Apparatus
ASTM B 496	(1992) Compact Round Concentric-Lay-Stranded Copper Conductors
ASTM C 478	(1997) Precast Reinforced Concrete Manhole Sections
ASTM C 478M	(1997) Precast Reinforced Concrete Manhole Sections (Metric)
ASTM D 1654	(1992) Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
ASTM D 2472	(1992) Sulfur Hexafluoride

ASSOCIATION OF EDISON ILLUMINATING COMPANIES (AEIC)

AEIC CS5	(1994) Cross-linked Polyethylene Insulated Shielded Power Cables Rated 5 Through 46 kV
AEIC CS6	(1996) Ethylene Propylene Rubber Insulated Shielded Power Cables Rated 5 Through 69 kV

FACTORY MUTUAL ENGINEERING AND RESEARCH (FM)

FM P7825a	(1998) Approval Guide Fire Protection
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INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE C2	(1997) National Electrical Safety Code
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- IEEE ANSI/IEEE C37.1 (1994) IEEE Standard Definition, Specification, and Analysis of Systems Used for Supervisory Control, Data Acquisition, and Automatic Control
- IEEE ANSI/IEEE C37.2 (1996) Electrical Power System Device Function Numbers and Contact Designations
- IEEE ANSI/IEEE C37.13 (1990; R 1995) Low-Voltage AC Power Circuit Breakers Used in Enclosures
- IEEE ANSI/IEEE C57.13 (1993) Instrument Transformers
- IEEE ANSI/IEEE C57.98 (1993) Guide for Transformer Impulse Tests
- IEEE C62.1 (1989; R 1994) Surge Arresters for AC Power Circuits
- IEEE C62.2 (1987; R 1994) Guide for the Application of Gapped Silicon-Carbide Surge Arresters for Alternating Current Systems
- IEEE C62.11 (1993) IEEE Standard Metal-Oxide Surge Arresters for AC Power Circuits
- IEEE Std 81 (1983) Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System (Part 1)
- IEEE Std 100 (1996) IEEE Standard Dictionary of Electrical and Electronics Terms
- IEEE Std 242 (1986; R 1991) Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
- IEEE Std 399 (1997) Recommended Practice for Industrial and Commercial Power Systems Analysis

#### NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA AB 1 (1993) Molded Case Circuit Breakers and Molded Case Switches
- NEMA FB 1 (1993) Fittings, Cast Metal Boxes and Conduit Bodies for Conduit and Cable Assemblies
- NEMA FU 1 (1986) Low Voltage Cartridge Fuses
- NEMA LA 1 (1992) Surge Arresters
- NEMA PB 1 (1990) Panelboards

NEMA TC 6	(1990) PVC and ABS Plastic Utilities Duct for Underground Installation
NEMA WC 7	(1991; Rev 1) Cross-Linked-Thermosetting-Polyethylene-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy
NEMA WC 8	(1991; Rev 1; Rev 2) Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1999) National Electrical Code
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#### UNDERWRITERS LABORATORIES (UL)

UL 6	(1997) Rigid Metal Conduit
UL 467	(1993; Rev thru Aug 1996) Grounding and Bonding Equipment
UL 486A	(1997) Wire Connectors and Soldering Lugs for Use with Copper Conductors
UL 489	(1996; Rev thru Nov 1997) Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
UL 510	(1994; Rev thru Nov 1997) Polyvinyl Chloride, Polyethylene and Rubber Insulating Tape
UL 514A	(1996; Rev Jul 1998) Metallic Outlet Boxes
UL 651	(1995; Rev thru Oct 1998) Schedule 40 and 80 Rigid PVC Conduit
UL 854	(1996; Rev Apr 1998) Service-Entrance Cables
UL 1242	(1996; Rev Apr 1997) Intermediate Metal Conduit

## 1.2 GENERAL REQUIREMENTS

### 1.2.1 Terminology

Terminology used in this specification is as defined in IEEE Std 100.

### 1.2.2 Service Conditions

Items provided under this section shall be specifically suitable for the following service conditions. Seismic details shall be as indicated.

- a. Fungus Control: N/A
- b. Altitude: 200 feet (61 meters)
- c. Ambient Temperature: 70 degrees Fahrenheit (°F)
- d. Frequency: 60 Hz
- e. Ventilation: N/A
- f. Seismic Parameters: Zone 3
- g. Humidity Control: N/A
- h. Corrosive Areas: Salt Spray

### 1.3 SUBMITTALS

Government approval is required for submittals with a “GA” designation; submittals not having a “GA” designation are for information only. When used, a designation following the “GA” designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

Electrical Distribution System; Panelboard, Circuit Breakers

Detail drawings consisting of equipment drawings, illustrations, schedules, instructions, diagrams manufacturers standard installation drawings and other information necessary to define the installation and enable the Government to check conformity with the requirements of the contract drawings.

If departures from the contract drawings are deemed necessary by the Contractor, complete details of such departures shall be included with the detail drawings. Approved departures shall be made at no additional cost to the Government.

Detail drawings shall show how components are assembled, function together and how they will be installed on the project. Data and drawings for component parts of an item or system shall be coordinated and submitted as a unit. Data and drawings shall be coordinated and included in a single submission. Multiple submissions for the same equipment or system are not acceptable except where prior approval has been obtained from the Contracting Officer (CO). In such cases, a list of data to be submitted later shall be included with the first submission. Detail drawings shall consist of the following:

- a. Detail drawings showing physical arrangement, construction details, connections, finishes, materials used in fabrication, provisions for conduit or busway entrance, access requirements for installation and maintenance, physical size, electrical characteristics, foundation and support details, and equipment weight. Drawings shall be drawn to scale

and/or dimensioned. All optional items shall be clearly identified as included or excluded.

- b. Internal wiring diagrams of equipment showing wiring as actually provided for this project. External wiring connections shall be clearly identified.

Detail drawings shall as a minimum depict the installation of the following items:

- a. Transformers
- b. Surge arresters
- c. Panelboards

The record drawings shall be a record of the construction as installed. The drawings shall include the information shown on the contract drawings as well as deviations, modifications, and changes from the contract drawings, however minor. The as-built drawings shall be a full sized set of prints marked to reflect deviations, modifications, and changes. The as-built drawings shall be complete and show the location, size, dimensions, part identification, and other information. Additional sheets may be added. The as-built drawings shall be jointly inspected for accuracy and completeness by the Contractor's quality control representative and by the CO prior to the submission of each monthly pay estimate. Upon completion of the work, the Contractor shall provide three full sized sets of the marked prints to the CO for approval. If upon review, the as-built drawings are found to contain errors and/or omissions, they will be returned to the Contractor for correction. The Contractor shall correct and return the as-built drawings to the CO for approval within 10 calendar days from the time the drawings are returned to the Contractor.

#### SD-03 Product Data

Fault Current Analysis; GA, Panelboard  
Protective Device; GA, Main Circuit Breaker

The study shall be submitted with protective device equipment submittals. No time extension or similar contract modifications will be granted for work arising out of the requirements for this study. Approval of protective devices proposed shall be based on recommendations of this study. The Government shall not be held responsible for any changes to equipment, device ratings, settings, or additional labor for installation of equipment or devices ordered and/or procured prior to approval of the study.

Catalog cuts, brochures, circulars, specifications, product data, and printed information in sufficient detail and scope to verify compliance with the requirements of the contract documents.

### Material and Equipment; Panelboard, Circuit Breakers

A complete itemized listing of equipment and materials proposed for incorporation into the work. Each entry shall include an item number, the quantity of items proposed, and the name of the manufacturer of each such item.

### SD-06 Test Reports

#### Factory Tests; Panelboard, Circuit Breakers

Certified factory test reports shall be submitted when the manufacturer performs routine factory tests, including tests required by standards listed in Paragraph 1.1 REFERENCES. Results of factory tests performed shall be certified by the manufacturer, or an approved testing laboratory, and submitted within 7 calendar days following successful completion of the tests. The manufacturer's pass-fail criteria for tests specified in Paragraph 3.11 FIELD TESTING shall be included.

#### Field Tests; Feeder and Branch Circuit Breakers and Circuits

A proposed field test plan, 20 calendar days prior to testing the installed system. No field test shall be performed until the test plan is approved. The test plan shall consist of complete field test procedures including tests to be performed, test equipment required, and tolerance limits.

#### Operating Tests; Feeder and Branch Circuits

Six copies of the information described below in 8-1/2 by 11 inch (22 by 28 centimeters [cm]) binders having a minimum of three rings, including a separate section for each test. Sections shall be separated by heavy plastic dividers with tabs.

- a. A list of equipment used, with calibration certifications
- b. A copy of measurements taken
- c. The dates of testing
- d. The equipment and values to be verified
- e. The condition specified for the test
- f. The test results, signed and dated
- g. A description of adjustments made

#### Cable Installation; Branch Circuits

Six copies of the information described below in 8-1/2 by 11 inch (22 by 28 cm) binders having a minimum of three rings from which material may readily be removed and replaced, including a separate section for each cable pull. Sections shall be separated by heavy plastic dividers with tabs, with all data sheets signed and dated by the person supervising the pull.

- a. Site layout drawing with cable pulls numerically identified.

- b. A list of equipment used, with calibration certifications. The manufacturer and quantity of lubricant used on pull.
- c. The cable manufacturer and type of cable.
- d. The dates of cable pulls, time of day, and ambient temperature.
- e. The length of cable pull and calculated cable pulling tensions.
- f. The actual cable pulling tensions encountered during pull.

#### SD-07 Certificates

##### Material and Equipment; Panelboards and Circuit Breakers

Where materials or equipment are specified to conform to the standards of the Underwriters Laboratories (UL) or to be constructed or tested, or both, in accordance with the standards of the American National Standards Institute (ANSI), the Institute of Electrical and Electronics Engineers (IEEE), or the National Electrical Manufacturers Association (NEMA), the Contractor shall submit proof that the items provided conform to such requirements. The label of, or listing by, UL will be acceptable as evidence that the items conform. Either a certification or a published catalog specification data statement, to the effect that the item is in accordance with the referenced ANSI or IEEE standard, will be acceptable as evidence that the item conforms. A similar certification or published catalog specification data statement to the effect that the item is in accordance with the referenced NEMA standard, by a company listed as a member company of NEMA, will be acceptable as evidence that the item conforms. In lieu of such certification or published data, the Contractor may submit a certificate from a recognized testing agency equipped and competent to perform such services, stating that the items have been tested and that they conform to the requirements listed, including methods of testing of the specified agencies. Compliance with above-named requirements does not relieve the Contractor from compliance with any other requirements of the specifications.

#### SD-10 Operation and Maintenance Data

##### Electrical Distribution System; Panelboard Branch Circuits

Six copies of operation and maintenance manuals, within 7 calendar days following the completion of tests and including assembly, installation, operation and maintenance instructions, spare parts data which provides supplier name, current cost, catalog order number, and a recommended list of spare parts to be stocked. Manuals shall also include data outlining detailed procedures for system startup and operation, and a troubleshooting guide that lists possible operational problems and corrective action to be taken. A brief description of all equipment, basic operating features, and routine maintenance requirements shall also be included. Documents shall be bound in a binder marked or identified on the

spine and front cover. A table of contents page shall be included and marked with pertinent contract information and contents of the manual. Tabs shall be provided to separate different types of documents, such as catalog ordering information, drawings, instructions, and spare parts data. Index sheets shall be provided for each section of the manual when warranted by the quantity of documents included under separate tabs or dividers.

Three additional copies of the instructions manual shall be provided within 30 calendar days following the manuals.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

Devices and equipment shall be visually inspected by the Contractor when received and prior to acceptance from conveyance. Stored items shall be protected from the environment in accordance with the manufacturer's published instructions. Damaged items shall be replaced. Metal poles shall be handled and stored in accordance with the manufacturer's instructions.

#### 1.5 EXTRA MATERIALS

One additional spare fuse or fuse element for each furnished fuse or fuse element shall be delivered to the CO when the electrical system is accepted. Two complete sets of all special tools required for maintenance shall be provided, complete with a suitable tool box. Special tools are those that only the manufacturer provides, for special purposes (to access compartments, or operate, adjust, or maintain special parts).

### **PART 2 PRODUCTS**

#### 2.1 STANDARD PRODUCT

Material and equipment shall be the standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Items of the same classification shall be identical including equipment, assemblies, parts, and components.

#### 2.2 NAMEPLATES

##### 2.2.1 General

Each major component of this specification shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a nameplate securely attached to the equipment. Nameplates shall be made of noncorrosive metal. Equipment containing liquid dielectrics shall have the type of dielectric on the nameplate. Sectionalizer switch nameplates shall have a schematic with all switch positions shown and labeled. As a minimum, nameplates shall be provided for transformers, circuit breakers, meters, switches, and switchgear.

## 2.3 CORROSION PROTECTION

### 2.3.1 Aluminum Materials

Aluminum shall not be used in contact with earth or concrete. Where aluminum conductors are connected to dissimilar metal, fittings conforming to UL 486B shall be used.

### 2.3.2 Ferrous Metal Materials

#### 2.3.2.1 Hardware

Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A 153/A 153M and ASTM A 123/A 123M.

#### 2.3.2.2 Equipment

Equipment and component items, including but not limited to transformer stations and ferrous metal luminaries not hot-dip galvanized or porcelain enamel finished, shall be provided with corrosion-resistant finishes which shall withstand 480 hours of exposure to the salt spray test specified in ASTM B 117 without loss of paint or release of adhesion of the paint primer coat to the metal surface in excess of 1/16 inch (1.6 millimeters [mm]) from the test mark. The scribed test mark and test evaluation shall be in accordance with ASTM D 1654 with a rating of not less than 7 in accordance with TABLE 1 (procedure A). Cut edges or otherwise damaged surfaces of hot-dip galvanized sheet steel or mill galvanized sheet steel shall be coated with a zinc rich paint conforming to the manufacturer's standard.

## 2.4 CABLES

Cables shall be single conductor type unless otherwise indicated.

### 2.4.1 Low-Voltage Cables

Cables shall be rated 600 volts and shall conform to the requirements of NFPA 70 and must be UL listed for the application or meet the applicable section of either ICEA or NEMA standards.

### 2.4.2 Insulation

Insulation must be in accordance with NFPA 70 and must be UL listed for the application or meet the applicable sections of either ICEA, or NEMA standards.

### 2.4.3 Jackets

Multiconductor cables shall have an overall PVC outer jacket.

### 2.4.4 In Duct

Cables shall be single-conductor cable, in accordance with NFPA 70.



## 2.5 CABLE JOINTS, TERMINATIONS, AND CONNECTORS

### 2.5.1 Low-Voltage Cable Splices

Low-voltage cable splices and terminations shall be rated at not less than 600 Volts. Splices in conductors No. 10 AWG and smaller shall be made with an insulated, solderless, pressure type connector, conforming to the applicable requirements of UL 486A. Splices in conductors No. 8 AWG and larger shall be made with noninsulated, solderless, pressure type connector, conforming to the applicable requirements of UL 486A and UL 486B. Splices shall then be covered with an insulation and jacket material equivalent to the conductor insulation and jacket. Splices below grade or in wet locations shall be sealed type conforming to ANSI C119.1 or shall be waterproofed by a sealant-filled, thick wall, heat shrinkable, thermosetting tubing or by pouring a thermosetting resin into a mold that surrounds the joined conductors.

## 2.6 CONDUIT AND DUCTS

Ducts shall be single, round-bore type, with wall thickness and fittings suitable for the application.

### 2.6.1 Metallic Conduit

Intermediate metal conduit shall comply with UL 1242. Rigid galvanized steel conduit shall comply with UL 6 and ANSI C80.1. Metallic conduit fittings and outlets shall comply with UL 514A and NEMA FB 1.

### 2.6.2 Nonmetallic Ducts

#### 2.6.2.1 Direct Burial

UL 651 Schedule 40 or NEMA TC 6 Type DB.

### 2.6.3 Conduit Sealing Compound

Compounds for sealing ducts and conduit shall have a putty-like consistency workable with the hands at temperatures as low as 35 degrees Fahrenheit (F) (1.7 degrees Celsius [C]), shall neither slump at a temperature of 300 degrees F (148.9 degrees C), nor harden materially when exposed to the air. Compounds shall adhere to clean surfaces of fiber or plastic ducts; metallic conduits or conduit coatings; concrete, masonry, or lead; any cable sheaths, jackets, covers, or insulation materials; and the common metals. Compounds shall form a seal without dissolving, noticeably changing characteristics, or removing any of the ingredients. Compounds shall have no injurious effect upon the hands of workmen or upon materials.

## 2.7 MANHOLES, HANDHOLES, AND PULLBOXES

Manholes, handholes, and pullboxes shall be as indicated. Strength of manholes, handholes, and pullboxes and their frames and covers shall conform to the requirements of IEEE C2.

Precast-concrete manholes shall have the required strength established by ASTM C 478, ASTM C 478M. Frames and covers shall be made of gray cast iron and a machine-finished seat shall be provided to ensure a matching joint between frame and cover. Cast iron shall comply with ASTM A 48, Class 30B, minimum. Handholes for low voltage cables installed in parking lots, sidewalks, and turfed areas shall be fabricated from an aggregate consisting of sand and with continuous woven glass strands having an overall compressive strength of at least 10,000 pounds per square inch (psi) (68.9 MegaPascals (MPa)] and a flexural strength of at least 5,000 psi (34.5 MPa). Pullbox and handhole covers in sidewalks, and turfed areas shall be of the same material as the box. Concrete pullboxes shall consist of precast reinforced concrete boxes, extensions, bases, and covers.

## 2.8 METERING AND PROTECTIVE DEVICES

### 2.8.1 Circuit Breakers, Low-Voltage

#### 2.8.1.1 Molded-Case Circuit Breakers

NEMA AB 1 and UL 489.

### 2.8.2 Fuses, Low-Voltage, Including Current-Limiting

Low-voltage fuses shall conform to NEMA FU 1. Time delay and nontime delay options shall be as shown. Equipment provided under this contract shall be provided with a complete set of properly rated fuses when the equipment manufacturer utilizes fuses in the manufacture of the equipment, or if current-limiting fuses are required to be installed to limit the ampere-interrupting capacity of circuit breakers or equipment to less than the maximum available fault current at the location of the equipment to be installed. Fuses shall have a voltage rating of not less than the phase-to-phase circuit voltage, and shall have the time-current characteristics required for effective power system coordination.

### 2.8.3 Watthour Meters

Watthour meters shall conform to ANSI C12.10, except numbered terminal wiring sequence and case size may be the manufacturer's standard. Watthour meters shall be of the socket mounted outdoor type having a 60 minute, cumulative form, demand register meeting ANSI C12.4 and provided with not less than 2-1/2 stators. Watthour demand meters shall have factory-installed electronic pulse initiators. Pulse initiators shall be solid-state devices incorporating light-emitting diodes, phototransistors, and power transistors, except that mercury-wetted output contacts are acceptable. Initiators shall be totally contained within watthour demand meter enclosures, shall be capable of operating up to speeds of 500 pulses per minute with no false pulses, and shall require no field adjustments. Initiators shall be calibrated for a pulse rate output of 1 pulse per 1/4 disc revolution of the associated meter and shall be compatible with the indicated equipment.

## 2.9 SURGE ARRESTERS

Surge arresters shall comply with NEMA LA 1, IEEE C62.1, IEEE C62.2, and IEEE C62.11 and shall be provided where indicated. Arresters shall be station class, rated as shown. Arresters for use at elevations in excess of 6000 feet (1829 meters) above mean sea level shall be specifically rated for that purpose. Arresters shall be equipped with mounting brackets suitable for the indicated installations. Arresters shall be of the metal-oxide varistor type.

## 2.10 GROUNDING AND BONDING

### 2.10.1 Driven Ground Rods

Ground rods shall be copper-clad steel conforming to UL 467 not less 3/4 inch (1.9 cm) in diameter by 10 feet (3 meters) in length. Sectional type rods may be used.

### 2.10.2 Grounding Conductors

Grounding conductors shall be bare, except where installed in conduit with associated phase conductors. Insulated conductors shall be of the same material as phase conductors and green color-coded, except that conductors shall be rated no more than 600 volts. Bare conductors shall be ASTM B 8 soft-drawn unless otherwise indicated. Aluminum is not acceptable.

## 2.11 CONCRETE AND REINFORCEMENT

Concrete work shall have minimum 3000 psi compressive strength and conform to the requirements of Section 03307 CONCRETE FOR MINOR STRUCTURES. Concrete reinforcing shall be as specified in Section 03307.

## 2.12 CABLE FIREPROOFING SYSTEMS

Cable fireproofing systems shall be listed in FM P7825a as a fire-protective coating or tape approved for grouped electrical conductors and shall be suitable for application on the type of medium-voltage cables provided. After being fully cured, materials shall be suitable for use where exposed to oil, water, gases, salt water, sewage, and fungus and shall not damage cable jackets or insulation. Asbestos materials are not acceptable.

### 2.12.1 Fireproof Coating

Cable fireproofing coatings shall be compounded of water-based thermoplastic resins, flame-retardant chemicals, and inorganic noncombustible fibers and shall be suitable for the application methods used. Coatings applied on bundled cables shall have a derating factor of less than 5 percent, and a dielectric strength of 95 volts per mil minimum after curing.

### 2.12.2 Fireproofing Tape

Fireproofing tape shall be at least 2 inches (5 cm) wide and shall be a flexible, conformable, polymeric, elastomer tape designed specifically for fireproofing cables.

### 2.12.3 Plastic Tape

Preapplication plastic tape shall be pressure sensitive, 10 mil (0.25 mm) thick, conforming to UL 510.

## 2.13 PANELBOARDS

### 2.13.1 Description

- a. The Contractor shall furnish and install the panelboards as specified and as shown on the contract drawings.

### 2.13.2 Quality Assurance

- a. General Requirements:
  1. New, free from defects, quality as specified.
  2. Standard product of known manufacturer.
  3. Labeled or listed by approved testing laboratories.
  4. Suitable for the intended application.
  5. Approved by inspection authorities.
  6. Conforming to applicable standards of NEMA, ANSI and IEEE.
  7. Service entrance products shall meet EUSERC Standards.
- b. The panelboards and all components shall be designed, manufactured and tested in accordance with the latest applicable standards, supplements and amendments to the following:
  1. ANSI/NFPA 70: National Electrical Code (NEC)
  2. UL 67: Panelboards
  3. UL 50: Cabinets and Boxes
  4. NEMA PB1
  5. Circuit Breaker: Type I Class I
  6. EUSERC: Electric Utility Service Equipment Requirements Committee

### 2.13.3 Qualifications

- a. The manufacturer of the panelboard shall be the manufacturer of the major components within the assembly, including circuit breakers.
- b. For the equipment specified herein, the manufacturer shall be ISO 9000, 9001 or 9002 certified.

- c. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the CO, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- d. The panelboards shall be suitable for and certified to meet all applicable seismic requirements of Uniform Building Code (UBC) for Zone 3 application. Guidelines for the installation consistent with these requirements shall be provided by the switchgear manufacturer and be based upon testing of representative equipment.

#### 2.13.4 Products

- a. Panelboards rated 240 Vac or less shall have short-circuit ratings as shown on the drawings, but not less than 10,000 amperes RMS symmetrical.
- b. Panelboards shall be labeled with a UL short-circuit rating. When series ratings are applied with integral or remote upstream devices, a label or manual shall be provided. It shall state the conditions of the UL series ratings including:
  - 1. Size and type of upstream device
  - 2. Branch devices that can be used
  - 3. UL series short-circuit rating
- c. Interiors shall be completely factory assembled devices. They shall be designed such that switching and protective devices can be replaced without disturbing adjacent units and without removing the main bus connectors.
- d. Trims for lighting and appliance panelboards shall be supplied with a hinged door over all circuit breaker handles. Doors in panelboard trims shall not uncover any live parts. Doors shall have a semiflush cylinder lock and catch assembly. Doors over 48-inches in height shall have auxiliary fasteners.
- e. Distribution panelboard trims shall cover all live parts. Switching device handles shall be accessible.
- f. Surface trims shall be same height and width as box. Flush trims shall overlap the box by 3/4-inch (1.9-cm) on all sides.
- g. A directory card with a clear plastic cover shall be supplied and mounted on the inside of each door.
- h. All locks shall be keyed alike.
- i. Enclosures shall be at least 20-inches (51 cm) wide made from galvanized steel. Provide minimum gutter space in accordance with the National Electric Code. Where feeder cables supplying the mains of a panel are carried through its box to supply other

electrical equipment, the box shall be sized to include the additional required wiring space. At least four (4) interior mounting studs with adjustable nuts shall be provided.

- j. Enclosures shall be provided with blank ends.
- k. Main bus bars shall be plated aluminum or copper sized in accordance with UL standards to limit temperature rise on any current carrying part to a maximum of 149 °F (65 °C) above an ambient of 104 °F (40 °C) maximum.
- l. A bolted ground bus shall be included in all panels.
- m. Full-size (100 percent-rated) insulated neutral bars shall be included for panelboards as shown with neutral. Bus bar taps for panels with single-pole branches shall be arranged for sequence phasing of the branch circuit devices.

#### 2.13.5 Wiring/Terminations

- a. Distribution panelboards with bolt-on devices contained therein shall have series or integrated rated interrupting ratings as indicated on the drawings. Panelboards shall have molded case circuit breakers as indicated below.
- b. Molded case circuit breakers shall provide circuit overcurrent protection with inverse time and instantaneous tripping characteristics. Ground fault protection shall be provided where indicated.
- c. Circuit breakers shall be operated by a toggle-type handle and shall have a quick-make, quick-break over-center switching mechanism that is mechanically trip-free. Automatic tripping of the breaker shall be clearly indicated by the handle position. Contacts shall be non-welding silver alloy and arc extinction shall be accomplished by means of DE-ION arc chutes. A push-to-trip button on the front of the circuit breaker shall provide a local manual means to exercise the trip mechanism.
- d. Circuit breakers shall have a minimum symmetrical interrupting capacity as indicated on the drawings.
- e. Where indicated, circuit breakers shall be UL listed for series application.
- f. Provide main circuit breakers UL listed for application at 100 percent of their continuous ampere rating in their intended enclosure.
- g. Provide shunt trips, bell alarms, and auxiliary switches as shown on the contract drawings.

#### 2.13.6 Branch Circuit Panelboards

- a. The minimum integrated short-circuit rating for branch circuit panelboards shall be indicated on the drawings.

- b. Bolt-in type, heavy-duty, quick-make, quick-break, single- and multi-pole circuit breakers of the types specified herein, shall be provided for each circuit with toggle handles that indicate when unit has tripped.
- c. Circuit breakers shall be thermal magnetic type with common type handle for all multiple pole circuit breakers. Circuit breakers shall be minimum 100-ampere frame and through 100-ampere trip sizes shall take up the same pole spacing.
  - 1. Circuit breaker handle locks shall be provided for all circuits that supply exit signs, emergency lights, and fire alarm panels.
- d. Circuit breakers shall have a minimum interrupting rating of 10,000-amperes symmetrical at 240 volts, and 14,000-amperes symmetrical at 480 volts.

#### 2.13.7 Finish

- a. Surfaces of the trim assembly shall be properly cleaned, primed, and a finish coat of gray ANSI 61 paint applied.

#### 2.14 ELECTRIC HEAT TRACE CABLE

- a. Self-regulating type heat cable, rated for 3 watts/foot (9.8 watts/meter) at 120 VAC.
- b. Low temperature rated, 150°F (65°C) maximum maintenance temperature.
- c. Twin 16 AWG copper bus wires, with a semiconductive polymer core and a flame retardant insulation jacket.
- d. Cable rated for overlap without burnout, capable of being cut to desired length.
- e. Local thermostat controller.
- f. Provide with termination kit and flexible power cable with grounding type plug (120V).
- g. Cable shall conform to UL Standard 1673.
- h. Furnish cable by Chromalox, Type SRL, or equivalent.

#### 2.15 LIGHTING

##### 2.15.1 Equipment

- a. Furnish equipment readily adaptable for installation and operation in the structure in the manner shown on the drawings.

- b. Assume full responsibility for alterations of planned structure to accommodate actual equipment furnished.
- c. Make and coordinate all required changes, including structural redesign if required to accommodate actual equipment furnished.
- d. Provide all such alterations free of extra cost to the Owner or his representatives.
- e. Provide fixtures complete with lamps, ballasts, reflectors, diffuser, lenses, louvers, shielding, hangers, accessories and fittings.
- f. Provide photocell controller for outdoor/exterior lighting.

#### 2.15.2 Protection

- a. Box, crate, or otherwise completely enclose and protect all equipment during shipment, handling, and storage.
- b. Protect equipment from exposure to elements and keep thoroughly dry at all times.
- c. Painted Surfaces:
  - 1. Protect against impact, abrasion, discoloration, and other damage.
  - 2. Repaint, to satisfaction of CO, all painted surfaces which are damaged prior to final acceptance.
  - 3. Protect electrical equipment, controls, insulation, etc. against moisture and water damage.

#### 2.15.3 Equipment Guarantee

- a. Guarantee all equipment against:
  - 1. Faulty or inadequate design.
  - 2. Improper assembly, erection, or handling.
  - 3. Defective workmanship or materials.
  - 4. Leakage, breakage, or other failure.

#### 2.15.4 Quality Assurance

- a. Applicable Standards: Shall be the latest revisions, supplements and amendments to the following:
  - 1. Certified Ballast Manufacturers (CBM) - Ballasts
  - 2. Illuminating Engineering Society (IES)
  - 3. Reflector and Lamp Manufacturers (RLM) Standards Institute
  - 4. Underwriters' Laboratories, Inc. (UL)



- i. UL Standard 935: Fluorescent Lamp Ballasts
  - ii. UL Standard 1029: High Intensity Discharge Lamp Ballasts
  - iii. UL Standard 1570: Fluorescent Lighting Fixtures
  - iv. UL Standard 1572: High Intensity Discharge Lighting Fixtures
- 5. American National Standards Institute (ANSI):
  - i. Applicable codes under C78 (Electric Lamps) for:
    - (1) High Intensity Discharge
    - (2) Fluorescent
  - ii. Applicable codes under C81: Electric Lamp Bases and Holders
  - iii. Applicable codes under C82: Lamp Ballasts and Transformers
- 6. ANSI/NFPA 70: National Electrical Code (NEC)
- 7. ASTM D523: Standard Test Method for Specular Gloss
- 8. Federal Specification W-L-00116: Fluorescent Lamps
- b. Acceptable Manufacturers:
  - 1. Lighting Fixtures: As listed on the Lighting Schedule or approved equivalent.
  - 2. High Intensity Discharge and Fluorescent Ballasts:
    - i. Jefferson Electric
    - ii. Advance Transformer
    - iii. Magnetek Lighting Products
    - iv. Lithonia Lighting Products
  - 3. High Intensity Discharge and Fluorescent Lamps:
    - i. General Electric Co.
    - ii. Philips Lighting
    - iii. Sylvania (GTE Products)

#### 2.15.5 Design Requirements

- a. Furnish and install a complete and operable lighting system.
- b. Provide interior and exterior lighting systems as indicated:
  - 1. 120 volt, 1-phase, 60 hertz.
- c. The fixture catalog numbers listed on the “luminaire schedule” indicate manufacturer, fixture design, appearance, etc., desired. These fixtures shall be modified if necessary to comply with the corresponding ceiling systems and application.
- d. All lighting fixtures shall bear the Underwriter’s Laboratories, Inc., label and shall be acceptable for installation in the locations indicated.

- e. All fixture component parts shall be manufactured and/or assembled at the manufacturing plant for shipment in one or more packages. The shipment from the fixture manufacturer shall include integrally-mounted ballasts where ballasts are required for the proper operation of the fixture lamps.
- f. If fixtures specified herein are discontinued at the time the work is executed, provide suitable substitute fixtures, without additional cost, as directed by the CO.
- g. Provide accessories such as wire guards, fusing, stem, canopies, cords, toggle bolts, etc., necessary to mount fixtures in a proper and approved method.
- h. Voltage: Provide ballast for operation of fixtures at voltage shown by circuiting on Drawings, or otherwise indicated.

#### 2.15.6 Fluorescent Fixtures

- a. Construction:
  - 1. Rust-protected highest quality steel
  - 2. Aluminum
- b. Finish on entire Fixture:
  - 1. Baked white enamel of non-modified acrylic on alkyd base type.
  - 2. Gloss 80 percent minimum measured by ASTM Method D523 (60 degrees).
  - 3. Reflectance all fixture parts shall be 85 percent of minimum measured with integrating sphere type reflectometer.
  - 4. Trim finish, louver surfaces, nonferrous reflecting surfaces exception to above requirement shall be manufacturer's standard finish.
- c. Design for maximum heat dissipation:
  - 1. Ballast case not exceed 194°F (90°C).
    - a. Ambient room temperature 75°F (24°C).
- d. Ballast Type:
  - 1. Ballast for high output lamps shall be high power factor type, UL labeled.
  - 2. Ballast for T-8 lamps shall be energy efficient solid state electronic type, UL labeled.
- e. Ballast Thermal Protection:
  - 1. Automatic resetting protection per UL requirements.

f. Ballast Mounting:

1. Eliminate vibration and noise.
2. Adequate heat transfer.
3. Captive bolts and nuts for easy replacement.

g. Sound rating Class B or better.

#### 2.15.7 High Intensity Discharge (Hid) Fixtures

- a. As listed on the drawing “luminaire schedule”.
- b. High Intensity Discharge Lamp Ballasts shall conform to UL-1029 and bear the CBM and UL labels.

#### 2.15.8 Lamps

- a. Provide lamps manufactured by Philips or equal unless otherwise indicated.
- b. Fluorescent:
  1. Lamps as indicated on the drawing “Luminaire Schedule”.
  2. 32 watt, T-8 rapid start energy efficient, color rendering, 48 inches (122 cm). Initial rating not less than 2,900 lumens.
- c. High Intensity Discharge (HID):
  1. Provide lamps as indicated and as recommended by the fixture manufacturer.
  2. Metal Halide (MH) lamps shall be in the wattage size indicated on the “luminaire schedule”.

#### 2.15.9 Special Accessories

- a. Provide as necessary to mount fixture:
  1. Suspended ceiling frames
  2. Stems
  3. Canopies
  4. Toggle bolts
  5. Cords, etc.
  6. Support Arms (driveway lighting)

#### 2.16 RECEPTACLES

- a. 20 amperes, 125 volts, 2 pole, 3 wire NEMA 5-20R unless otherwise noted:
  1. Totally enclosed grounding type.

- b. 30 ampere, 125 volts, 2 pole, 3 wire NEMA 5-30R for special loads:
  - 1. Totally enclosed grounding type.
  - 2. Provide matching plug for all NEMA 5-30R receptacles.
- c. All exterior receptacles shall be provided with weatherproof covers.
- d. Provide GFCI receptacles where indicated on Drawings.

## 2.17 FACTORY TESTS

Factory tests shall be performed, as follows, in accordance with the applicable publications and with other requirements of these specifications. The CO shall be notified at least 10 calendar days before the equipment is ready for testing. The CO reserves the right to witness the tests.

- a. Transformers: Manufacturer's standard design tests in accordance with IEEE ANSI/IEEE C57.12.00.
- b. Factory Preformed Terminations: Wet withstand voltage tests in accordance with IEEE Std 48 for the next higher BIL level.

## 2.18 ELECTRIC WALL HEATER

- a. Cast aluminum heating grid.
- b. Fan motor self-lubricated and resiliently mounted.
- c. Thermal limit switch snap acting, automatic reset.
- d. Fan delay switch snap acting.
- e. Built-in thermostat 408F to 1008F with features to permit remote line voltage thermostat or remote low voltage transformer/relay.
- f. 240 volt heaters shall include a step-down transformer for operation of fan motor and control circuit at 120 volts.
- g. Heater shall have a minimum rating of 2000 Watts at 240 volts single phase.. QMark model GFR 2004T2 (Grainger #3UG18), or equivalent.

## PART 3 EXECUTION

### 3.1 GENERAL INSTALLATION REQUIREMENTS

Equipment and devices shall be installed and energized in accordance with the manufacturer's published instructions. Except as covered herein, excavation, trenching, and

backfilling shall conform to the requirements of Section 02316 EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS. Concrete work shall have minimum 3,000 psi (20.7 MPa) compressive strength and conform to the requirements of Section 03307 CONCRETE FOR MINOR STRUCTURES.

#### 3.1.1 Conformance to Codes

The installation shall comply with the requirements and recommendations of NFPA 70 and IEEE C2 as applicable.

#### 3.1.2 Verification of Dimensions

The Contractor shall become familiar with details of the work, shall verify dimensions in the field, and shall advise the CO of any discrepancy before performing any work.

#### 3.1.3 Disposal of Liquid Dielectrics

PCB-contaminated dielectrics must be marked as PCB and transported to and incinerated by an approved EPA waste disposal facility. The Contractor shall furnish certification of proper disposal. Contaminated dielectrics shall not be diluted to lower the contamination level.

### 3.2 CABLE INSTALLATION

The Contractor shall obtain from the manufacturer an installation manual or set of instructions which addresses such aspects as cable construction, insulation type, cable diameter, bending radius, cable temperature, lubricants, coefficient of friction, conduit cleaning, storage procedures, moisture seals, testing for and purging moisture, etc. The Contractor shall then prepare a checklist of significant requirements which shall be submitted along with the manufacturer's instructions in accordance with Paragraph 1.3 SUBMITTALS.

#### 3.2.1 Duct Cleaning

Duct shall be cleaned with an assembly that consists of a flexible mandrel (manufacturers standard product in lengths recommended for the specific size and type of duct) that is 1/4 inch (0.63 cm) less than inside diameter of duct, 2 wire brushes, and a rag. The cleaning assembly shall be pulled through conduit a minimum of 2 times or until less than a volume of 8 cubic inches (131 cubic cm) of debris is expelled from the duct.

#### 3.2.2 Duct Lubrication

The cable lubricant shall be compatible with the cable jacket for cable that is being installed. Application of lubricant shall be in accordance with lubricant manufacturer's recommendations.

### 3.3 DUCT LINES

#### 3.3.1 Requirements

Numbers and sizes of ducts shall be as indicated. Duct lines shall be laid with a minimum slope of 4 inches (10 cm) per 100 feet (30.5 meters [m]). Depending on the contour of the finished grade, the high-point may be at a terminal, a manhole, a handhole, or between manholes or handholes. Short-radius manufactured 90-degree duct bends may be used only for pole or equipment risers, unless specifically indicated as acceptable. The minimum manufactured bend radius shall be 18 inches (46 cm) for ducts of less than 3 inch (8 cm) diameter, and 36 inches (91 cm) for ducts 3 inches (8 cm) or greater in diameter. Otherwise, long sweep bends having a minimum radius of 25 feet (7.6 m) shall be used for a change of direction of more than 5 degrees, either horizontally or vertically. Both curved and straight sections may be used to form long sweep bends, but the maximum curve used shall be 30 degrees and manufactured bends shall be used. Ducts shall be provided with end bells whenever duct lines terminate in manholes or handholes.

#### 3.3.2 Treatment

Ducts shall be kept clean of concrete, dirt, or foreign substances during construction. Field cuts requiring tapers shall be made with proper tools and match factory tapers. A coupling recommended by the duct manufacturer shall be used whenever an existing duct is connected to a duct of different material or shape. Ducts shall be stored to avoid warping and deterioration with ends sufficiently plugged to prevent entry of any water or solid substances. Ducts shall be thoroughly cleaned before being laid. Plastic ducts shall be stored on a flat surface and protected from the direct rays of the sun.

#### 3.3.3 Nonencased Direct-Burial

Top of duct lines shall be below the frost line depth of 18 inches (46 cm) , but not less than 24 inches (61 cm) below finished grade and shall be installed with a minimum of 3 inches (8 cm) of earth around each duct, except that between adjacent electric power and communication ducts, 12 inches (30 cm) of earth is required. Bottoms of trenches shall be graded toward manholes or handholes and shall be smooth and free of stones, soft spots, and sharp objects. Where bottoms of trenches comprise materials other than sand, a 3 inch (8 cm) layer of sand shall be laid first and compacted to approximate densities of surrounding firm soil before installing ducts. Joints in adjacent tiers of duct shall be vertically staggered at least 6 inches (15 cm) . The first 6 inch (15 cm) layer of backfill cover shall be sand compacted as previously specified. The rest of the excavation shall be backfilled and compacted in 3 to 6 inch (8 to 15 cm) layers. Duct banks may be held in alignment with earth. However, high-tiered banks shall use a wooden frame or equivalent form to hold ducts in alignment prior to backfilling.

#### 3.3.4 Installation of Couplings

Joints in each type of duct shall be made up in accordance with the manufacturer's recommendations for the particular type of duct and coupling selected and as approved.

#### 3.3.4.1 Plastic Duct

Duct joints shall be made by brushing a plastic solvent cement on insides of plastic coupling fittings and on outsides of duct ends. Each duct and fitting shall then be slipped together with a quick 1/4-turn twist to set the joint tightly.

#### 3.3.5 Duct Line Markers

Duct line markers shall be provided as indicated. In addition to markers, a 5 mil (0.13 mm) brightly colored plastic tape, not less than 3 inches (8 cm) in width and suitably inscribed at not more than 10 feet (3 m) on centers with a continuous metallic backing and a corrosion-resistant 1 mil (0.025 mm) metallic foil core to permit easy location of the duct line, shall be placed approximately 12 inches (30 cm) below finished grade levels of such lines.

### 3.4 MANHOLES, HANDHOLES, AND PULLBOXES

#### 3.4.1 General

Manholes shall be constructed approximately where shown. The exact location of each manhole shall be determined after careful consideration has been given to the location of other utilities, grading, and paving. The location of each manhole shall be approved by the CO before construction of the manhole is started. Manholes shall be the type noted on the drawings and shall be constructed in accordance with the applicable details as indicated. Top, walls, and bottom shall consist of reinforced concrete. Walls and bottom shall be of monolithic concrete construction. The Contractor may at his option utilize monolithically constructed precast-concrete manholes having the required strength and inside dimensions as required by the drawings or specifications. In paved areas, frames and covers for manhole and handhole entrances in vehicular traffic areas shall be flush with the finished surface of the paving. In unpaved areas, the top of manhole covers shall be approximately 1/2 inch above the finished grade. Where existing grades that are higher than finished grades are encountered, concrete assemblies designed for the purpose shall be installed to elevate temporarily the manhole cover to existing grade level. All duct lines entering manholes must be installed on compact soil or otherwise supported when entering a manhole to prevent shear stress on the duct at the point of entrance to the manhole. Duct lines entering cast-in-place concrete manholes shall be cast in-place with the manhole. Duct lines entering precast concrete manholes through a precast knockout penetration shall be grouted tight with a portland cement mortar. PVC duct lines entering precast manholes through a PVC endbell shall be solvent welded to the endbell. A cast metal grille-type sump frame and cover shall be installed over the manhole sump. A cable-pulling iron shall be installed in the wall opposite each duct line entrance.

#### 3.4.2 Electric Manholes

Cables shall be securely supported from walls by hot-dip galvanized cable racks with a plastic coating over the galvanizing and equipped with adjustable hooks and insulators. The number of cable racks indicated shall be installed in each manhole and not less than 2 spare

hooks shall be installed on each cable rack. Insulators shall be made of high-glazed porcelain. Insulators will not be required on spare hooks.

### 3.4.3 Communications Manholes

The number of hot-dip galvanized cable racks with a plastic coating over the galvanizing indicated shall be installed in each telephone manhole. Each cable rack shall be provided with 2 cable hooks. Cables for the telephone and communication systems will be installed by others.

### 3.4.4 Ground Rods

A ground rod shall be installed at the manholes, handholes and pullboxes. Ground rods shall be driven into the earth before the manhole floor is poured so that approximately 4 inches (10 cm) of the ground rod will extend above the manhole floor. When precast concrete manholes are used, the top of the ground rod may be below the manhole floor and a No. 1/0 AWG ground conductor brought into the manhole through a watertight sleeve in the manhole wall.

## 3.5 PAD-MOUNTED EQUIPMENT INSTALLATION

Power utility pad-mounted equipment shall be installed on concrete pads in accordance with the manufacturer's published, standard installation drawings and procedures, except that they shall be modified to meet the requirements of this document. Units shall be installed so that they do not damage equipment or scratch painted or coated surfaces. After installation, surfaces shall be inspected and scratches touched up with a paint or coating provided by the manufacturer especially for this purpose.

### 3.5.1 Concrete Pads

#### 3.5.1.1 Construction

Concrete pads for pad-mounted electrical equipment may be either pre-fabricated or poured-in-place per electrical utility requirements. Pads shall be constructed as indicated, except that exact pad dimensions and mounting details are equipment specific and are the responsibility of the Contractor. Tops of concrete pads shall be level and shall project 4 inches (10 cm) above finished paving or grade and sloped to drain. Edges of concrete pads shall have 3/4 inch (1.9 cm) chamfer. Conduits for primary, secondary, and grounding conductors shall be set in place prior to placement of concrete pads. Where grounding electrode conductors are installed through concrete pads, PVC conduit sleeves shall be installed through the concrete to provide physical protection. To facilitate cable installation and termination, the concrete pad shall be provided with a rectangular hole below the primary and secondary compartments, sized in accordance with the manufacturer's recommended dimensions. Upon completion of equipment installation the rectangular hole shall be filled with masonry grout.



### 3.5.1.2 Concrete and Reinforcement

Concrete work shall have minimum 3,000 psi (20.7 MPa) compressive strength and conform to the requirements of Section 03307 CONCRETE FOR MINOR STRUCTURES. Concrete reinforcing shall be as specified in Section 03307.

### 3.5.1.3 Sealing

When the installation is complete, the Contractor shall seal all conduit and other entries into the equipment enclosure with an approved sealing compound. Seals shall be of sufficient strength and durability to protect all energized live parts of the equipment from rodents, insects, or other foreign matter.

## 3.6 CONNECTIONS BETWEEN AERIAL AND UNDERGROUND SYSTEMS

Connections between aerial and underground systems shall be made per power utility requirements. Conduits shall be secured to the poles by 2-hole galvanized steel pipe straps spaced not more than 10 feet (3 meters) apart and with 1 strap not more than 12 inches (30 cm) from any bend or termination. Conduits shall be equipped with bushings to protect cables and minimize water entry.

## 3.7 PANELBOARD

### 3.7.1 Inspection

- a. Verify location and mounting requirements for the equipment.
- b. Verify voltage prior to installation
- c. Examine switchboard equipment for damage and replace prior to installation.

### 3.7.2 Installation

#### a. General

1. Install panelboard in accordance with manufacturer's instructions, the drawings, and NEC.
2. Properly ground to building ground system.
3. Properly support and align and provide all necessary accessories and steel shapes for support and alignment.
4. Installation to meet requirements for a Seismic Zone 3 area.
5. Coordinate switchboard installation with the facility construction.

### 3.7.3 Testing

- a. Test the switchboard for proper operation and correct phasing.
- b. Perform all tests as recommended by the manufacturer and/or requested by the CO.

### 3.8 ELECTRIC HEAT TRACE CABLE INSTALLATION

- a. Install at the shutoff valves, spigot, and exposed water lines where indicated on the Drawings.
- b. Cross-wrap cable per manufacturer's instructions.
- c. Extend cable approximately 24 inches (61 cm) past valve flange in each pipe direction.
- d. Properly secure cable to valves and piping with UL approved nylon cable ties or fiberglass tape.
- e. Install power connection kit per manufacturer's instructions/recommendations in the general area of the power receptacle.
- f. Install and connect the flexible power cable and plug assembly.

### 3.9 LIGHTING

#### 3.9.1 Inspection

- a. Verify location and mounting requirements for each fixture.
- b. Verify voltage at each fixture outlet prior to installation.
- c. Examine fixtures for damage or broken parts and replace prior to installation.

#### 3.9.2 Installation

- a. General:
  - 1. Install lighting fixtures at locations indicated on contract drawings.
  - 2. Coordinate installation of fixtures with other subcontractors, and verify methods of hanging and supporting required.
  - 3. Install after pipe, duct, conduit, etc., that will be installed above light fixtures have been installed unless otherwise directed by the CO.
  - 4. Fixtures to be coordinated with ductwork, piping and structural members. Adjust stems as required for proper illumination of the area.

5. Properly support and align fixtures and provide all necessary accessories and steel shapes for support of the fixtures. Coordinate complete fixture installation with the facility construction.
6. All fixtures to be illuminated at time of acceptance.
7. All fixtures to be supported in a manner to meet the requirements in a Seismic Zone 3 area.

### 3.9.3 Supports And Alignment

- a. Provide proper supports for all fixtures:
  1. Rods, hangers, swivel plates, support arms, to suit conditions and slopes.
  2. Steel angles and shapes, unistrut, spacers as required by conditions.
  3. Fixture supports independent from conduit.
  4. Fixtures shall support 200 pound (90.7 kilograms) minimum.
- b. Alignment:
  1. Parallel to building lines.
  2. Uniform and symmetrical spacing within rooms.
  3. Uniform level when suspended from sloping surfaces.

### 3.9.4 Cleaning And Relamping

- a. All lighting fixtures shall be cleaned immediately prior to final inspection.
- b. Touch-up scratched or marred surfaces to match original finish.

### 3.9.5 Testing

- a. Refer to this Section for general testing criteria.
- b. Test all systems for proper operation and correct phasing.
- c. Test all lighting circuits and systems upon completion of installation to assure that the lighting loads operate satisfactorily and conform to Contract Documents.
- c. Perform all tests as recommended by the system manufacturers or requested by the CO.

### 3.10 ELECTRIC UNIT HEATER INSTALLATION

#### a. General:

1. Install forced air wall heater with the lowest point of heater more than 2-feet 0 inches above finished floor.
2. Use heater manufacturer's recommended bracket and installation methods.
3. Install utility heaters as shown on the drawings. Heaters in equipment buildings shall be located for best access to equipment.

### 3.11 GROUNDING

A ground ring consisting of the indicated configuration of bare copper conductors and driven ground rods shall be installed around pad-mounted equipment as shown. Equipment frames of metal-enclosed equipment, and other noncurrent-carrying metal parts, such as cable shields, cable sheaths and armor, and metallic conduit shall be grounded. At least 2 connections shall be provided from a transformer, to the ground mat. Metallic frames and covers of handholes and pull boxes shall be grounded by use of a braided, copper ground strap with equivalent ampacity of No. 6 AWG.

#### 3.11.1 Grounding Electrodes

Grounding electrodes shall be installed as shown on the drawings and as follows:

- a. Driven rod electrodes - Unless otherwise indicated, ground rods shall be driven into the earth until the tops of the rods are approximately 1 foot (0.3 m) below finished grade.
- b. Ground ring - A ground ring shall be installed as shown consisting of bare copper conductors installed 24 inches (61 cm), plus or minus 3 inches (8 cm), below finished top of soil grade. Ground ring conductors shall be sized as shown.
- d. Additional electrodes - When the required ground resistance is not met, additional electrodes shall be provided interconnected with grounding conductors. The additional electrodes will be up to three 10-foot (3.0-m) rods spaced a minimum of 12 feet (3.7 m) apart, driven perpendicular to grade. In high ground resistance, UL listed chemically charged ground rods may be used. If the resultant resistance exceeds 25 ohms measured not less than 48 hours after rainfall, the CO shall be notified immediately.

#### 3.11.2 Grounding and Bonding Connections

Connections above grade shall be made by the fusion-welding process or with bolted solderless connectors, in compliance with UL 467, and those below grade shall be made by a fusion-welding process. Where grounding conductors are connected to aluminum-

composition conductors, specially treated or lined copper-to-aluminum connectors suitable for this purpose shall be used.

### 3.11.3 Grounding and Bonding Conductors

Grounding and bonding conductors include conductors used to bond transformer enclosures and equipment frames to the grounding electrode system. Grounding and bonding conductors shall be sized as shown, and located to provide maximum physical protection. Bends greater than 45 degrees in ground conductors are not permitted. Routing of ground conductors through concrete shall be avoided. When concrete penetration is necessary, nonmetallic conduit shall be cast flush with the points of concrete entrance and exit so as to provide an opening for the ground conductor, and the opening shall be sealed with a suitable compound after installation.

### 3.11.4 Surge Arrester Grounding

Surge arresters and neutrals shall be bonded directly to the panelboard enclosure and then to the grounding electrode system with a bare copper conductor, sized as shown. Lead lengths shall be kept as short as practicable with no kinks or sharp bends.

### 3.11.5 Manhole, Handhole, or Pullbox Grounding

Ground rods installed in manholes, handholes, or concrete pullboxes shall be connected to cable racks, cable-pulling irons, the cable shielding, metallic sheath, and armor at each cable joint or splice by means of a No. 4 AWG braided tinned copper wire. Connections to metallic cable sheaths shall be by means of tinned terminals soldered to ground wires and to cable sheaths. Care shall be taken in soldering not to damage metallic cable sheaths or shields. Ground rods shall be protected with a double wrapping of pressure-sensitive plastic tape for a distance of 2 inches (5 cm) above and 6 inches (15 cm) below concrete penetrations. Grounding electrode conductors shall be neatly and firmly attached to manhole or handhole walls and the amount of exposed bare wire shall be held to a minimum.

## 3.12 FIELD TESTING

### 3.12.1 General

Field testing shall be performed in the presence of the CO. The Contractor shall notify the CO 10 calendar days prior to conducting tests. The Contractor shall furnish all materials, labor, and equipment necessary to conduct field tests. The Contractor shall perform all tests and inspections recommended by the manufacturer unless specifically waived by the CO. The Contractor shall maintain a written record of all tests which includes date, test performed, personnel involved, devices tested, serial number and name of test equipment, and test results. Field test reports shall be signed and dated by the Contractor.

### 3.12.2 Safety

The Contractor shall provide and use safety devices such as rubber gloves, protective barriers, and danger signs to protect and warn personnel in the test vicinity. The Contractor shall replace any devices or equipment which are damaged due to improper test procedures or handling.

### 3.12.3 Ground-Resistance Tests

The resistance of the ground ring shall be measured using the fall-of-potential method defined in IEEE Std 81. Ground resistance measurements shall be made before the electrical distribution system is energized and shall be made in normally dry conditions not less than 48 hours after the last rainfall. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together below grade. The combined resistance of separate systems may be used to meet the required resistance, but the specified number of electrodes must still be provided.

- a. Single rod electrode - 25 ohms.
- b. Multiple rod electrodes - 25 ohms.
- c. Ground ring - 25 ohms.

### 3.12.4 Ground-Mat Connection Inspection

All below-grade ground-ring connections will be visually inspected by the CO before backfilling. The Contractor shall notify the CO 8 hours before the site is ready for inspection.

### 3.12.5 Low-Voltage Cable Test

Low-voltage cable, complete with splices, shall be tested for insulation resistance after the cables are installed, in their final configuration, ready for connection to the equipment, and prior to energization. The test voltage shall be 500 volts dc, applied for one minute between each conductor and ground and between all possible combinations conductors in the same trench, duct, or cable, with all other conductors in the same trench, duct, or conduit. The minimum value of insulation shall be:

$$R \text{ in megohms} = (\text{rated voltage in kV} + 1) \times 1000 / (\text{length of cable in feet})$$

Each cable failing this test shall be repaired or replaced. The repaired cable shall be retested until failures have been eliminated.

### 3.12.6 Circuit Breaker Tests

The following field tests shall be performed on circuit breakers. Pass-fail criteria shall be in accordance with the circuit breaker manufacturer's specifications.

- a. Insulation resistance test phase-to-phase.

- b. Insulation resistance test phase-to-ground.
- c. Closed breaker contact resistance test.
- d. Power factor test.
- e. Manual and electrical operation of the breaker.

### 3.12.7 Pre-Energization Services

Calibration, testing, adjustment, and placing into service of the installation shall be accomplished by a manufacturer's product field service engineer or independent testing company with a minimum of 2 years of current product experience. The following services shall be performed on the equipment listed below. These services shall be performed subsequent to testing but prior to the initial energization. The equipment shall be inspected to ensure that installation is in compliance with the recommendations of the manufacturer and as shown on the detail drawings. Terminations of conductors at major equipment shall be inspected to ensure the adequacy of connections. Bare and insulated conductors between such terminations shall be inspected to detect possible damage during installation. If factory tests were not performed on completed assemblies, tests shall be performed after the installation of completed assemblies. Components shall be inspected for damage caused during installation or shipment to ensure packaging materials have been removed. Components capable of being both manually and electrically operated shall be operated manually prior to the first electrical operation. Components capable of being calibrated, adjusted, and tested shall be calibrated, adjusted, and tested in accordance with the instructions of the equipment manufacturer. Items for which such services shall be provided, but are not limited to, are the following:

- a. Panelboards
- b. Switches

### 3.12.8 Operating Tests

After the installation is completed, and at such times as the CO may direct, the Contractor shall conduct operating tests for approval. The equipment shall be demonstrated to operate in accordance with the requirements herein. An operating test report shall be submitted in accordance with Paragraph 1.3 SUBMITTALS.

### 3.13 ACCEPTANCE

Final acceptance of the facility will not be given until the Contractor has successfully completed all tests and after all defects in installation, material or operation have been corrected.

**END OF SECTION**

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